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The Philosophies of F. R. Tennant and John Dewey

By

J. OLIVER BUSWELL, Jr.

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To My Students

and to their labors in the tangled intellectual jungles of this generation.

FOREWORD

Although this thesis is largely critical in its nature, its purpose is constructive. I have sought to sketch against the background of Tennant's and Dewey's philosophies an integrated system of theistic metaphysics and epistemology.

The empirical philosophies of Tennant and Dewey stand out in strong antithesis and contrast: (1) Tennant's psychology is personalistic. He seeks to prove a substantival mind or soul, or a Cartesian *res cogitans;* Dewey's psychology is anti-personalistic; anti-mentalistic. The notion of a distinguishable Subject is anathema.

(2) Tennant's theory of knowledge is strongly inclined toward dualism of subject-object relationship. He recognizes the *a priori* status of the abstract laws of logic and mathematics. Dewey's epistemology is belligerently anti-dualistic. He violently and with great elaboration expostulates against all *a priori* laws of truth; holding that the forms of logic are produced *in and by* the inquiry process.

(3) In metaphysics Tennant recognizes existing objective entities in the world of reality. His development of the cosmological and teleological theistic arguments, with special attention to the *inorganic* world has attracted the attention of students of theology throughout the United States. He stands in the tradition of Butler and Paley, with the important exception that his arguments encompass a cosmic horizon, rather than detailed adaptations. Dewey opposes "objects" as much as he opposes *a priori* logical forms. For "objects" he substitutes "data", but his data are

"takens" not "givens". He wishes for the elimination of nouns, giving place to adjectives and adverbs. On his negative view of prior existing historical facts it seems equally impossible to prove that Washington crossed the Delaware, that Caesar crossed the Rubicon, or that Christ arose from the dead. There are surprising lacunae in his treatment of the literature of science. Tennant's bi-polar formula "so-called knowledge of so-called objects by so-called subjects" is matched by Dewey's vitalistic on-going of the inquiry process.

My critical analysis of Tennant's inadequate realism and Dewey's *a priori* negations has, I trust, helped to clear the ground. The constructive philosophy which I have developed is essentially that suggested long ago by Charles Hodge, and designated by him as realistic dualism. The created universe is found to contain two important interacting classes of objects, thinking things and moving things. It is time that the monists were made to see that unity without diversity is mere static nothing, that interacting dualism implies no "great gulf", and that active integration is possible only within the heterogeneous.

Theistic realistic dualism has a great advantage over other empiricisms in that it recognizes the validity of evidences for the historical and the tangible. To rule out the Judeo-Christian historical tradition on *a priori* grounds is irrational violence, intellectual sabotage.

In the current issue of *Theology Today,* (July, 1950), Emile Cailliet of Princeton Seminary presents with approval the notion that "there will never be a harmonious continuity between [philosophical] truth and the Truth which is in Jesus Christ." He urges "that a discontinuity be acknowledged in the formal unity of the notion of truth." To such intellectual rags and tatters has some so-called evangelical doctrine been reduced! There is a crying need for the *integrationism* in metaphysics and epistemology which this work attempts to present. The truth is really true; *Christus vere resurrexit.*

The kindly assistance and encouragement of my sponsoring committee at New York University School of Education, Dr. Louise Antz, Professor Samuel Hamilton, and Dr. Ernest R. Wood, is gratefully acknowledged. A Ph.D. thesis of this kind meant the expenditure of much time and effort by the committee, and especially by the Chairman.

Special thanks are due to my secretarial staff who have done the typing and proof reading amid many other duties.

Permission from the publishers for the use of all the quoted material included in this thesis is acknowledged with thanks.

J. Oliver Buswell, Jr.
Shelton College, New York City

August, 1950

CONTENTS

PAGE

PREFACE 1-10

The problem stated. p. 1. Definitions of general terms. p. 1. Empiricism, empirical. p. 1. Experience. p. 2. Pragmatism. p. 3. Tennant and Dewey. p. 7. Specialized terms. p. 8. Conclusion. p. 8.

PART I.

ANALYTICAL SUMMARY OF TENNANT'S EMPIRICISM 11-263

INTRODUCTION 11-18

Tennant's general position in philosophy. p. 11. Horton and Macintosh on Tennant. p. 12. Bertocci and Scudder on Tennant. p. 13.

CHAPTER I.

TENNANT'S PSYCHOLOGICAL GENETIC APPROACH TO KNOWLEDGE 17-49

Prima facie facts. p. 17. The order of knowing. p. 18. James Ward's psychology. p. 20. Tennant's atomism. p. 21. Tennant's sensationalism. p. 23. Associationism, detailed analysis of Tennant's psychology. p. 24. The "subject" of Tennant's psychology. p. 29. *Erlebnis*. p. 30. Hume on the "self". p. 32. Tennant's dualism.

p. 35. Development of genetic psychology. p. 37. Bode's view of the self. p. 46. Summary. p. 47. Conclusions. p. 47.

APPENDIX A.

BODE'S VIEW OF THE SOUL 50-64

CHAPTER II.

TENNANT'S VIEW OF THE NATURE OF KNOWLEDGE: PHENOMENALISM 66-147

Epistemology. p. 66. Transitional. p. 67. The categories, Aristotle. p. 68. Time and space, Kant. p. 71. Time and space, confusion of definition. p. 74. Augustine's view. p. 74. Definitions of time and space. p. 76. Categories of the undestanding. p. 77. "Real" categories. p. 79. Substance. p. 80. Aristotle on matter and substance. p. 81. Tennant's dualism. p. 82. Thought and reason. p. 84. Theories of knowledge, rationalism. p. 86. Theories of knowledge, empiricism. p. 88. Theories of knowledge, realism, idealism, phenomenalism. p. 88. Tennant's symbols. p. 96. Tennant's phenomenalism compared with other systems. p. 97. Relativity of knowledge. p. 98. Tennant's use of phenomenalism. p. 100. Induction. p. 101. Probability. p. 103. *The Nature of Belief*. p. 107. Tennant as a theologian. p. 108. Summary of *The Nature of Belief*. p. 113. Tennant on the nature of religious experience. p. 114. Bertocci on Tennant's view of mysticism. p. 118. Hook on religious experience. p. 119. Scudder on Tennant's doctrine of religious experience.

PAGE

p. 122. Conclusion. p. 124. The nature and limitations of scientific knowledge. p. 125. Conclusion, Tennant's epistemology in general. p. 131.

APPENDIX B.

EPISTEMOLOGICAL CATEGORIES, SUGGESTED. OUTLINE 133-147

CHAPTER III.

TENNANT'S METAPHYSICAL CONCLUSIONS 148-263

Tennant's metaphysics, general statement. p. 148. Generalizations. p. 155. Is the world rational? p. 157. Does man legislate for nature? p. 158. Underwood on curved space. p. 160. Lamont on dimensionalism. p. 161. Meaning of "law". p. 163. "Logical" necessity. p. 164. Law as self-subsistent. p. 165. Ontological necessity. p. 165. Law and Mechanism. p. 166. Philosophical meaning of discontinuity p. 169. *Vis a tergo*. p. 171. Explanation, rationality of the world. p. 172. *Zweckmässigkeit ohne Zweck.* p. 177. Cosmic teleology. p. 179. The ontological argument. p. 181. Anselm. p. 182. Descartes. p. 183. Leibnitz. p. 187. Kant. p. 189. Tennant on the ontological argument. p. 189. Teleology, general approach. p. 190. Rational mind and the ontal world. p. 193. Teleology in organisms. p. 196. Teleology in the inorganic world. p. 198. Teleology in aesthetics. p. 203. Ethical teleology. p. 208. Synthetic view. p. 211. The nature of God. p. 214. Creation. p. 214. Time.

PAGE

p. 215. The infinitude of God. p. 217. Calvinistic use of "infinite". p. 219. Perfection and immutability. p. 220. The view of Thomas Aquinas. p. 221. Thomas on immutability. p. 222. Transitional summary. p. 223. The absolute. p. 224. Personality. p. 226. Trinity. p. 228. Tennant on polytheism. p. 228. Omniscience. p. 229. The fact of evil. p. 231. "Best possible". p. 232. Application. p. 234. Immanence. p. 237. *Miracle*. p. 240. Revelation. p. 243. Incarnation. p. 246. Conclusion. p. 248.

PART II.

ANALYTICAL SUMMARY OF DEWEY'S EMPIRICISM 264-483

INTRODUCTION 264-265

Delimitations, not a study of Dewey's philosophy as a whole. p. 264.

CHAPTER IV.

DEWEY'S PSYCHOLOGY 266-315

Dewey and Allport in the Schilpp Volume. p. 226. Earliest period in Dewey's psychology. p. 268. Articles in *Mind,* 1886. p. 270. Article in *Bibliotheca Sacra,* 1886. p. 271. Article in *Andover Review,* 1887. p. 274. The causal and the occasional. p. 276. An example of Dewey's Hegelianism. p. 279. "The reflex arc concept in psychology", 1896. p. 285. Dewey's changing view of the personal ego. p. 289. Dewey's article, "The Vanishing Subject . . . of William James", 1940. p. 292. Dewey's article, "The ego as

PAGE

cause", 1894. p. 293. Attempts to account for *Erlebnis*. p. 298. Dewey's five steps. 302. Five steps, conclusion. p. 303. The psychology of *Human Nature and Conduct*. p. 304. Conclusions. p. 306.

CHAPTER V.

DEWEY'S EPISTEMOLOGY 316-443

Overplapping of epistemology and ontology. p. 316. Relation of *Logic* to Dewey's earlier writings. p. 317. *The Quest for Certainty*. p. 318. Dewey's use of Aristotle. p. 319. Primitive cultural anthropology. p. 321. Discovery of antecedent facts and principles, the zero sign. p. 325. The all or none device. p. 327. Five-fold development of *Quest*. p. 328. (1) Separation between theory and practice. p. 328. (2) Modern science in conflict. p. 331. Eight philosophies of certainty. p. 338. (3) Scientific procedure and instrumentalism. p. 340. Two degrees of control, astronomy. p. 342. Greek attitude toward material nature. p. 345. "Data" substituted for "objects". p. 349. Events. p. 349. Knowing by doing. p. 351. Dobzhansky on science and certainty. p. 351. Bridgman. p. 353. Eddington. p. 354. Bridgman and Newton. p. 356. "Experimental empiricism". p. 358. Dewey on Newton, hypotheses. p. 359. Descartes' rationalism. p. 361. Newton's theory of atoms. p. 361. Dewey on Newton's view of time and space. p. 366. Dewey and Einstein. p. 367. Einstein on Euclid. p. 369. The Heisenberg principle and Newton. p. 378. Laplace. p. 379. The principle of indeterminacy. p. 383. Three

a priori negatives. p. 385. Truth and falsehood reversible. p. 386. The unconscious normative. p. 386. (4) Destruction of barriers between theory and practice. p. 386. (5) Effect of instrumentalism. p. 390. Revelation and incarnation. p. 392. Dewey's Copernican revolution. p. 394. The intellectualist's fallacy. p. 395. The problem of evil. p. 398. Religion and fact. p. 400. *Logic, The Theory of Inquiry*. p. 401. Logical inquiry, the cause of logical forms. p. 406. *Ab extra*. p. 410. Dewey on Peirce. p. 415. Three kinds of relation. p. 420. Dewey on paper money. p. 425. Necessary logical relationships. p. 427. Theory of relativity. p. 431. Carelssness. p. 433. Conclusion. p. 434.

CHAPTER VI.

DEWEY'S METAPHYSICS 443-487

General introduction, Garnett. p. 443. *Experience and Nature*. p. 448. Interdict against nouns. p. 448. Causality. p. 452. *Historismus*. p. 455. Woodbridge on Dewey's view of history. p. 456. "Experience" and "house". p. 459. Subjects and objects. p. 459. Definition of consciousness. p. 461. Dewey's vitalism (animism). p. 463. Carelessness. p. 464. *Art as Experience*. p. 465. Vitalism. p. 467. *A Common Faith*. p. 469. Anti-supernaturalism. p. 469. Anti-materialism. p. 470. Lamprecht and Flint. p. 472. Verifiable reality. p. 473. Liberalism and fundamentalism. p. 473. Three stages of history. p. 474. The problem of evil. p. 475. God and atheism. p. 476. The religious and religions. p.

PAGE

477. God or no God. p. 478. Ignorance of church history. p. 479. Dewey's creed that cannot be shaken. p. 480. Summary and conclusion. p. 481. Negatives. p. 481. The positive. p. 483.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 488-500

Summary. p. 488. Summary, psychology. p. 492. Summary, epistemology. p. 493. Summary, metaphysics, p. 494. Conclusion, psychology. p. 495. Conclusion, epistemology. p. 497. Conclusion, metaphysics. p. 499. Recommendations for further research. p. 500.

BIBLIOGRAPHY 500-506

INDEX 507

PREFACE

The Problem Stated

The problem which constitutes the subject matter of this thesis is an analysis of the empirical method of F. R. Tennant, a comparison of Tennant's empiricism with the empiricism of John Dewey, and an examination of the possible philosophical implications of Tennant's empiricism for those areas of American education in which Dewey's thought is a prevailing influence.

Delimitation of the Problem

The study of the philosophies of Tennant and Dewey is confined to their empiricism. This is not a study of philosophies as whole systems, but a study of types of empirical method.

Definitions of General Terms

Empiricism, empirical

The term empiricism (with its corresponding adjective) is applied to those types of philosophy which place chief emphasis on experience. Any philosophical system of empiricism is a method of seeking a knowledge of reality through experience. Empiricism in all forms excludes alleged knowledge from sources outside of experience. Thus empiricism agrees with scientific psychology in that it does not recognize or accept alleged knowledge supposedly arising from innate ideas or from *a priori* rational forms. Empiricism does not necessarily exclude deductive reasoning, but insists that inductive reasoning from the data of experience is primary, and that there can be no deduction which is not based on previous inductive or experimental processes.

Although many philosophers claim the term empiricism for a great variety of views within the limits of the definition given here, it has not been thought necessary or possible to investigate the numerous types of empirical theory in which both historical and current philosophical literature abounds. The field has been limited to two closely parallel systems of empiricism, Tennant's and Dewey's.

This happens to be a term in which the etymology is indicative of the modern current usage. The Greek noun (*peira*) meant "attempt," "trial," "experiment." It was used with the prepositional prefix *em* or "in," to signify *empeiria,* "experience," and *empeirikos,* "experienced." Hence our English word "empirical."

Experience

While "empirical" and "experience" both doubtless come from the same Aryan root, it happens that the latter is of Latin derivation. The Latin word *peritus* (from *perior*) meaning "experienced," was used with the prepositional prefix *ex,* to signify *experientia* (from *experior*), "experimental knowledge" and "experience." Thus the words "empirical" and "experience" were as closely related in their classical, as they are in their modern philosophical usage.

The connotation[1] of the term experience is well understood; the denotation, however, is controversial. To illustrate,—for mysticism, experience may be held to include ineffable direct contact, or identity, with divine noumenal reality. For D. C. Mackintosh (a monistic critical realist), experience includes direct immediate knowledge of divine noumenal reality, but such knowledge is explicable, not ineffable. For the "English empiricists" (John Stuart Mill and others whom Dewey, especially in his earlier writings, opposes) empiricism implied a necessary dualism between knowing subject and noumenal object. Further illustrations might be multiplied. The great variety in types of empiricism may be said to be due largely to differences in the denotation of the term experience, differences as to what kinds of data experience may be held to include. This study has been concerned, not with the numerous historical and current views of the field of experience, but with the views of Tennant and Dewey, both of whom exclude from their data all mystical and ineffable elements, and both of whom include only what is open to public investigation.

Pragmatism

The term "pragmatism" has not been used in this study in any technical way, since the word is now subject to so much popular misunderstanding. One is reminded that Xenophon used the plural form *pragmata* to mean "trouble." Although Dewey's philosophy was earlier called "pragmatism," the word proved to be so troublesome that in his *Logic*[2] he says, "The word 'pragmatism' does not, I think, occur in the text [of this book]. Perhaps the word lends itself to misconception. At all events so much misunderstanding and relatively futile controversy have gathered about the word that it seemed advisable to avoid its use."

William James[3] says of the term "pragmatism,"

> The term is derived from the same Greek word *prágma* [should be accented *prâgma*] meaning action, from which our words 'practice' and 'practical' come. It was first introduced into philosophy by Mr. Charles Peirce in 1878, in an article entitled 'How to Make Our Ideas Clear,' in the 'Popular Science Monthly' for January of that year . . . It [the principle of pragmatism] lay entirely unnoticed by anyone for twenty years, until I, in an address before Professor Howison's philosophical union at the university of California, brought it forward again and made a special application of it to religion. By that date (1898) the times seemed ripe for its reception. The word 'pragmatism' spread, and at present it fairly spots the pages of the philosophic journals. On all hands we find the 'pragmatic movement' spoken of, sometimes with respect, sometimes with contumely, seldom with clear understanding. It is evident that the term applies itself conveniently to a number of tendencies that hitherto have lacked a collective name, and that it has 'come to stay'.

Baldwin's dictionary[4] combines the words "pragmatic" and "pragmatism" in one composite definition written in part by Peirce.

Although the term "pragmaticism" is not listed in Baldwin's dictionary, and is not referred to in the definition of pragmatism, Peirce in his portion of that definition takes exception to William James' use of the term, and points out that in the article in *Popular Science Monthly* for January 1878, he had "explained how it [pragmatism] was to be applied to the doctrine of reality."

Peirce's ontology that is his view of the nature of existence, was neo-Kantian idealism[5]. In 1905 Peirce changed the name of his doctrine from "pragmatism" to "pragmaticism." This term is listed and defined by James K. Feibleman in Runes' *Dictionary of Philosophy*[6].

Feibleman in his *Introduction to Peirce's Philosophy*[7] under the heading "The Definition and Explanation of Pragmatism" (pp. 295 ff.) collects a considerable number of passages in which Peirce specifically defines his own idea of what pragmatism is. In widely scattered contexts Peirce repeatedly and emphatically defines pragmatism not only in the positive statement that the meaning of a term or object is to be discovered by its effects under *all conceivable* circumstances, but, more significantly, in the negative statement that *there is nothing whatever* to a term or object other than the effects. In other words, although Feibleman scarcely seems to be aware of the fact, Peirce's definition of pragmatism, logic and all, seems to lie wholly within the field of ontology, and amounts to an interesting restatement of the metaphysics of neo-Kantian idealism: the object *is* the sum total of all its conceivable effects.

It is not at all strange that William James, who was a vigorous dualist, or pluralist, missed the point of Peirce's idealistic negative (Peirce denying to the object all reality other than its effects), and with his marvelous literary power of expression, James picked up and magnified a practical aspect of the affirmative element in Peirce's definition: that the meaning of a term for us is to be found in conduct. Peirce denied the existence, the *Dasein,* of the "thing in itself." William James made no such denial, was scarcely interested in abstruse ontology apart from the practical.

Randall and Buchler[8] in discussing "the Problem of Meaning" present Peirce's pragmatism as substantially identical with the instrumentalism of John Dewey. The divergence between Peirce and William James is summarized as follows:

> Perhaps the essential point of difference in the two types of pragmatism considered thus far is that for James the word "practical" has a looser and more popular meaning than it has for Peirce. The general pragmatic emphasis is that statements are significant if they have "practical" consequences. But this may mean (1) that they have consequences capable of experimental investigation, or (2) that belief in these statements influences human conduct. The first meaning defines the standard of Peirce, the second that of James (p. 126).

It is represented that the divergence between Peirce and James resulted from James' "revolt against 'intellectualism'," James' failing to see the possibilities of a "synthesis of empiricism and rationalism," while "Peirce's experimentalism is intellectualistic in this sense." (p. 128) The argument of Randall and Buchler continues, "The account of the knowledge-situation that we shall state is in its fundamental features common to Peirce and John Dewey, and we explain here the approach and version of Dewey, sometimes called *instrumentalism.*" (p. 130)

Randall and Buchler completely ignore Peirce's ontological reference in his doctrine of "pragmatism" or "pragmaticism." Dewey does the same thing in his *Quest for Certainty* (1929) when he says[9]

> Peirce states that the sole meaning of the idea of an object consists of the consequences which result when the object is acted upon in a particular way.

The words "in a particular way" show that Dewey missed Peirce's meaning. In the same footnote Dewey says

> On account of ambiguities in the notion of pragmatism—although its *logical* import is identical—I shall follow Bridgman in speaking of "operational thinking."

However, in 1929 Dewey was not quite ready to abandon the term, for in the same work[10] he refers to his own view as "pragmatic instrumentalism." It is in the introduction to his *Logic* 1938, see p. 3 above) that he calls attention to the fact that he has dropped the word pragmatism entirely, on account of its ambiguity.

It is difficult to see how anyone even casually familiar with Peirce's writing[11] could fail, as Randall and Buchler have, to be impressed with the fact that Peirce is far more of a rationalist than either James or Dewey. As between James and Dewey, although James introduced emotional elements into his processes of arriving at beliefs, yet he never went as far as Dewey in his repudiation of the *a priori* status of the abstract laws of logic. It is basic to Dewey's position that logical principles are not *discovered,* but are *produced* by inquiry. He states this dogma at the very beginning of his *Logic* (p. 4) in the words, ". . . the [logical] forms *originate* in operations of inquiry . . . primary inquiry is itself *causa essendi* of the forms . . ." This doctrine is reiterated literally scores of times throughout his *Logic.* If James differs from Peirce in that the former repudiates rationalism, surely Dewey is one step further removed. Nothing could be farther from the facts than representing Dewey as holding to a "synthesis of empiricism and rationalism," or representing Peirce as adhering to Dewey's (radically anti-rationalistic) intrumentalism.

In his article "The Development of American Pragmatism[12]" Dewey aptly sums up the difference between the pragmatism of Peirce and the pragmatism of James in the words, "In short, Peirce wrote as a logician and James as a humanist." Dewey then proceeds to derive his instrumentalism much more directly from the pragmatism of James than from that of Peirce.

The writer, from a study of Peirce and Dewey, had come to a conclusion contrary to that of Randall and Buchler while using their *Introduction* as a textbook, before he discovered Feibleman's argument[13] to the same effect as his own conclusion. Entirely apart from the Feibleman-Buchler controversy, it should be clear that the erstwhile pragmatism of Dewey[14] is not the pragmatism of Peirce, and that Dewey did well in dropping the term "pragmatism" altogether in his *magnum opus, Logic, the Theory of Inquiry.*

The term "pragmatism" has not attached itself to the work of Tennant in any important manner. However, to those accustomed to designate Dewey's philosophy as a system of pragmatism, it might appear that the same term should apply to Tennant's views. This excursus on the meaning and history of the term "pragmatism" has seemed necessary, therefore, in order to show why pragmatism is not used as a technical term in this thesis.

Tennant and Dewey, contemporaries, empiricist philosophers, so nearly the same age,[15] do not seem to have influenced one another in any direct way. Tennant never refers to Dewey, and the writer has not found in Dewey's writings any reference to Tennant.

Dewey, in his *Psychology,* published in 1887, p. 12, as quoted by White[16] refers to the "genetic" method in the study of psychology, a term important for Tennant. However, by this term Dewey did not mean, as Tennant does, the origin of so-called knowledge by so-called subjects of so-called objects in sensory experience. Genetic psychology for Dewey meant the evolutionary interpretation of psychological data. This concept is congenial for Tennant but is not his meaning of the term.[17]

In his *Philosophical Theology* (Vol. I, p. 231) Tennant says, "The extremist type of realism is that which has been called by Dr. Broad, the instrumental theory." This instrumental realism is quite different from the instrumentalism of John Dewey, and the fact that Tennant makes no reference to Dewey in his use of the word "instrumental" in such connection would indicate that Tennant was not familiar with Dewey's views. Tennant could scarcely have described the theory that feeling is instrumental toward the appreciation of value (*Philosophical Theology,* Vol. I, p. 140 f.) as "the instrumental theory," with no qualifications, no notation of the different usages of the word, and no reference to Dewey, if he had been in any way familiar with Dewey's radically different views on the subject of instrumentalism.

Tennant's one reference to F. C. S. Schiller (*Philosophical Theology,* Vol. I, p. 12), who, in his humanism, was closely associated with Dewey in the early days of pragmatism, is the nearest to a case of direct influence between Tennant and Dewey which the writer has discovered. It is but an allusion to Schiller's opposition to "apriorism."

In Volume I of Tennant's *Philosophical Theology,* William James' *Psychology* is referred to some half dozen times; his *Varieties of Religious Experience* is quoted critically (p. 315 f.); his *Essays in Radical Empiricism* is specifically referred to (p. 366), but Tennant in 1928 scarcely seems to be familiar with James' *Pragmatism.*

Tennant once refers to "the American logician, Peirce" (*Philosophical Theology,* Vol. I, p. 274), but this is in connection with Peirce's theory of probability, not his pragmatism.

Tennant uses "pragmatism" and "pragmatic" (*Philosophical Theology,* Vol. I, p. 284) in a manner quite inconsistent with the definitions given by Peirce though not entirely inconsistent with Dewey's earlier usage.

Tennant strongly rejects[18] in 1932 what he calls "theological pragmatism," the view "that a religion under the influence of which a genuine spiritual life has flourished cannot be simply false." This is far from the pragmatism of Peirce.

Tennant's empirical philosophy cannot in any true sense be located within the pragmatist movement. We are justified, therefore, in his case, as we are justified (for other reasons) in the case of Dewey, in avoiding the application of the term pragmatism to his system of empiricism.

Specialized Terms

Specialized terms employed by Dewey and Tennant to designate their respective philosophies, such as experimentalism and instrumentalism for Dewey, and phenomenalism (not the doctrine of Mach) for Tennant, are discussed under appropriate headings in connection with their respective views.

Conclusion

It should be emphasized at this point that the important term to be understood at the beginning of this study is empiricism as defined above, the empiricism of Tennant and Dewey which investigates the data of common experience,—not the mystic, the occult, or the ineffable—but the data of experience open to public investigation.

From this point forward through the six chapters of parts I and II the writer pursues an inductive, topical method of presenting the data. It is suggested that some of the readers may prefer to read first the general Summary and Conclusion which follows chapter VI, suspending judgment, of course, until after the data in the body of the thesis has been examined.

1—Bertocci (Peter Anthony Bertocci, *The Empirical Argument for God in Late British Thought,* Harvard University Press, 1938, p. 96) is not correct in saying, "Experience, as the etymology of the word implies, is basically conative . . ." One does not find data in classical usage, either Latin or Greek, to substantiate Bertocci's view of the etymology; quite the contrary. Moreover, the passage from James Ward (James Ward, *Psychological Principles,* Cambridge University Press, 1918, p. 358) which Bertocci is here discussing does not by any means give support to a basically conative meaning. Ward is quoted as saying, "Now we have from the first regarded experience not as simply passively moulded by circumstances but as also actively shaped by our own endeavor towards self-conservation and betterment." Certainly the modern usage includes the cognitive, the affective, and the conative meanings, all three, as equally basic.

2—John Dewey, *Logic, The Theory of Inquiry,* New York: Henry Holt and Company, 1938. p. iii.

3—William James, *Pragmatism,* Ralph Barton Perry, editor, New York: Longmans, Green and Company, reprint of 1946. p. 46 f.

4—James Mark Baldwin, editor, *Dictionary of Philosophy and Psychology,* copyright 1902, new edition with corrections 1925, reprinted 1940. New York: Peter Smith.

5—See the article entitled "Introduction to the Metaphysics and Theology of C. S. Peirce" by Karl Briton in *Ethics,* Vol. XLIX, No. 4, July 1929. Chicago: University of Chicago Press. pp. 435 ff.

6—Dagobert D. Runes, editor, *Dictionary of Philosophy,* New York: Philosophical Library, 1943. This dictionary contains useful definitions and bibliographical references for a considerable number of philosophical terms not current in 1902 when Baldwin's dictionary was published.

7—James Feibleman, *Introduction to Peirce's Philosophy,* New York: Harper and Brothers, 1946. See especially Chapter Seven, Sections B and C. This work of Feibleman's is severely criticized by Justus Buchler in a review in the *Journal of Philosophy* for May 22, 1947, (Vol. XLIV, No. 11). Buchler's own work (*The Philosophy of Peirce, Selected Writings,* Justus Buchler, New York: Harcourt, Brace and Company, 1940) exhibits a worthy balance, perspective and understanding, and has been a valuable help to the writer. Of Buchler's book, *Charles Peirce's Empiricism*, Harcourt Brace, 1939, Feibleman says (see pp. 483 f.), "Dr. Buchler's work fails to exhibit that consistency, the absence of which in Peirce he so laments. The parts break down into a series of little essays on empirical topics, into sections which are not interconnected." Feibleman's handling of Buchler's position is somewhat caustic, which may account for the superfluous acidity of Buchler's review. Probably all that Buchler says against Feibleman's workmanship is true and can be supported by facts. Nevertheless, it is not the whole truth. Feibleman's work is not only valuable, as Buchler says in his review, "to those who wish to make apt citations from Peirce for one purpose or another." The student who has devoted any considerable time to the reading of Peirce's collected writings, unless he is himself an authority on Peirce's philosophy as Buchler is, will find much help in Feibleman's elaborate cross references and topical arrangements.

8—John Herman Randall, Jr., and Justus Buchler, *Philosophy An introduction*, Barnes and Noble, 1942, Chapter X.

9—John Dewey, *Quest for Certainty*, George Allen & Unwin, 1929, p. 108, footnote.

10—Op. cit., p. 38, footnote.

11—See, for example, his articles on Logic, Laws of Thought, and Reason, in Baldwin's *Dictionary*.

12—Originally published in French in *Revue Metaphysique Morale*, October 1922, Vol. XXIX, pp. 411-430, translated by H. W. Snyder for *Studies in the History of Ideas*, New York: Columbia University Press, 1925. Reprinted in *Twentieth Century Philosophy*, Dagobert D. Runes, editor, New York: Philosophical Library, 1943, pp. 451-467.

13—Op. cit., pp. 483 ff.

14—William Savery in his chapter entitled "The Significance of Dewey's Philosophy" in *The Philosophy of John Dewey* (Paul Arthur Schilpp, editor, Evanston: Northwestern University Press, 1939) confirms the opinion expressed above. He says (p. 486), "Peirce led to James and James to Dewey and the result was an inductive and experimental theory of truth." The reader will find nearly a column of references to pragmatism in the index to the Schilpp volume.

15—Tennant was born in 1866 and Dewey in 1859.

16—Norton G. White, *The Origin of Dewey's Instrumentalism*, New York: Columbia University Press, 1943. p. 58.

17—Edna Heidbreder, *Seven Psychologies*, New York: D. Appleton-Century Company, 1933, p. 205, uses the term "genetic psychology" —not as Tennant does, but as Dewey does—with reference to the psychological interests of G. Stanley Hall, Dewey's teacher in psychology.

18—F. R. Tennant, *Philosophy of the Sciences*, New York: Cambridge University Press, 1932, p. 178 f. See also ibid. p. 166 where Tennant correctly points to the relationship between Ritschlianism and Pragmatism. It is here the pragmatism of James which he evidently has in mind.

PART I

ANALYTICAL SUMMARY OF TENNANT'S EMPIRICISM

INTRODUCTION

Tennant's General Position in Philosophy

Frederick Robert Tennant (1866), Fellow of Trinity College and Lecturer in Philosophy in the University of Cambridge until 1938, is probably the foremost of the British empiricists in the field of philosophy of religion. His published books are as follows:

The Origin and Propagation of Sin, Cambridge University Press, 1902.

The Sources of the Doctrines of the Fall and Original Sin, Cambridge University Press, 1903.

The Concept of Sin, Cambridge University Press, 1912.

The three books listed above are not directly pertinent to this thesis.

Miracle and Its Philosophical Presuppositions, Cambridge University Press, 1925.

A small book of just over one hundred pages; not as directly relevant to this study as the title would seem to suggest.

Philosophical Theology, Cambridge University Press.

Volume I The Soul and its Faculties, xvi plus 422 pages, 1928.

Volume II The World the Soul and God, xiv plus 276 pages, 1930.

These two volumes are Tennant's *magnum opus.*

Philosophy of the Sciences, Cambridge University Press, 1932, xii plus 191 pages.

This is a compendium of Tennant's *Philosophical Theology.* It is more readable and lucid than the larger work, and shows an advance in two respects: (1) Tennant here touches briefly on *Gestalt* psychology, a subject completely ignored in the long section on psychology in the earlier work. (2) The definition of "science" is discussed at length, and Tennant comes much nearer to Dewey's broader usage than in his earlier works.

The Nature of Belief, The Centenary Press, London, 1943, x plus 117 pages.

A popular restatement of Tennant's view on the nature of non-religious, and religious, belief. The book adds nothing to previous works, but clarifies several of Tennant's definitions.

In 1940, which was Tennant's seventy-fifth year, Scudder[1] published a complete bibliography of Tennant's writings and of important reviews and comments on Tennant's teachings up to that date. A more recent letter from Tennant, addressed to the writer, indicates that our list of Tennant's books is complete to the present date.

Horton[2] characterizes the "dully methodical style of the Cambridge theologian whom we have chosen to represent the scientific type of liberalism," as follows:

> Inge believes like all Neo-Platonists in intuition as a superior mode of knowledge, and characteristically jumps from thought to thought like a squirrel jumping from limb to limb, without much considering how he gets there. Tennant, like other scientific empiricists, distrusts all alleged intuitive certainties, and moves from thought to thought more like an inch-worm than like a squirrel—always with at least four feet on some firm, empirical foundation, and the others waving tentatively in the air till they have found some equally firm object to take hold of . . . By virtue of this ideal of a genuinely empirical, reasonable, and in the larger sense, "scientific" theology, Professor Tennant enters into the heritage of eighteenth-century natural theology, and stands in the succession of Newton, Butler and Paley . . . In a generation

> for which the name of Paley has become a subject of mild derision, it takes courage to stand in his succession . . . he declares that Paley's teleological argument for the existence of God is *not* outmoded by Darwinism; it merely needs to be transferred from the adaptive relations of the individual organism to those of the world-process as a whole; while Butler's famous dictum, "Probability is the guide of life," is still a better methodological guide for the theologian than all the mystical and pragmatic short cuts by which the nineteenth century tried to force its way to the Ultimate.

D. C. Macintosh,[3] a critical realist and monist, describes Tennant's work in terms which are objectively similar to those of Horton. Macintosh, however, is critical of Tennant's dualism and of his omission of "religious experience" from the field of empirical evidence.

Scudder[4] and Bertocci,[5] the best American authorities on Tennant, call attention to the fact that Tennant's undergraduate university training was in the field of the physical sciences, and that for several years after his graduation from Cambridge, he served as a teacher of science in a preparatory school.

Both Scudder and Bertocci point out that lectures of Thomas Huxley delivered in 1889 (the senior year of Tennant's undergraduate studies), in which Huxley attacked the commonly accepted beliefs of evangelical Christianity, deeply stirred Tennant, whose religious views at that time "did not differ from those of the orthodox laymen of the Church of England." (Bertocci, p. 192). Huxley's attack was based in part upon the German Biblical Criticism of "Walter Baur and Friedrich Strauss," according to both Scudder and Bertocci. The names intended are Ferdinand Christian Baur (1792-1860), leader of the Tübingen School of Theology who became Professor of Theology at Tübingen in 1826, and David Friedrich Strauss (1808-1874), author of *Leben Jesu* (1835) and of *Der alte und der neue Glaube* (1872) who became a student in Tübingen in 1825.[6] Huxley's book of essays on the subject "Science and Christian Tradition"[7] includes three essays on Agnosticism, one of which called "A Rejoinder" was first published in 1889. Huxley's preface to this volume (p. v f.) begins with a quotation more than a page in length from pages nine and ten of *Der alte und der neue Glaube* by David Friedrich Strauss. The quotation is followed by Huxley's comment

> So wrote one of the protagonists of the New Reformation —and a well-abused man, if there ever was one—a score of years since, in the remarkable book in which he discusses the negative and the positive results of rigorous application of scientific method to the investigation of the higher problems of human life.
>
> Recent experience leads me to imagine that there may be a good many countrymen of my own, even at this time, to whom it may be profitable to read, mark and inwardly digest, the weighty words of the author of that "Leben Jesu," which half a century ago, stirred the religious world so seriously . . .

Although one does not find in these essays of Huxley's any direct reference to Ferdinand Christian Baur, Huxley's attacks upon the New Testament abound in references to the Tübingen theology. As is well known to students of New Testament criticism, Baur regarded Paul as a genuine historical character and *Romans, I* and *II Corinthians* and *Galatians* as genuine historical documents. In "Agnosticism: A Rejoinder"[8] Huxley refers to the genuine historicity of Paul but adds in a footnote, ". . . but there is a school of theological critics who more or less question the historical reality of Paul, and the genuineness of even the four cardinal epistles."

The opinions of Baur and Strauss, and the Hegelian rationalism which dominated those opinions, are not now taken seriously, as scientific conclusions, by most New Testament scholars. To those of us who are somewhat familiar with advanced critical studies in the synoptic problem and in *Form Geschichte,* the opinions of Huxley in his attacks upon the New Testament seem strange indeed. Modern New Testament critics have generally abandoned Huxley's approach. A disciple of James Gresham Machen on the other hand might well wish that Tennant had reacted to Huxley's challenge by a direct frontal counter-attack.

Bertocci says that Tennant, "aroused" by Huxley, "began his search for a *rationale* of religion which could profit from all legitimate scientific conclusions as well as withstand criticism from all avenues of learning."[9] Scudder indicates that Tennant, as a result of Huxley and "the conflict between science and the established principles of religion," undertook "an extensive investigation of the history and development of the doctrine of the Fall and Original Sin in an attempt to bring this doctrine into line with the scientific postulates of evolution."[10]

Tennant evidently considered Huxley's arguments unanswerable. His coming to terms with evolution resulted in his first three published books as listed above (pp. 10 f). Thenceforth, abandoning New Testament Christianity and the Biblical Judeo-Christian tradition, he proceeded to devote the active years of his scholarly life to the development of a type of theism which is practically identical with traditional English deism.

So it came about that a brilliant young scientist turned to philosophical theology and developed an empirical approach to the question of the existence of God.[11]

1—Delton Lewis Scudder, *Tennant's Philosophical Theology,* a Yale Ph.D. thesis, Yale University Press, 1940, Yale Studies in Religious Education, XIII, pp. 259-265.

2—Walter Marshall Horton, *Contemporary English Theology,* Harper, 1936, pp. 85 ff.

3—D. C. Macintosh, *The Problem of Religious Knowledge,* Harper, 1940, pp. 223 ff. While using this work as a textbook some years ago, the writer made the remark relative to Macintosh's extreme monism in epistemology, "Macintosh makes no distinction between seeing an object, and getting the object in your eye." Later one of the writer's students after a year of post-graduate study in Harvard, wrote to the effect that Macintosh's work was considered important at Harvard, in the field of religious epistemology. The student said that after his further study of Macintosh, he still agreed that his monism is so extreme that he makes no distinction between "seeing an object and getting the object in your eye."

4—Op. cit., pp. 1 ff.

5—Op. cit., pp. 192 ff.

6—Did Bertocci or Tennant possibly confuse the name of the contemporary Walter Felix Bauer, born in Konigsberg, August 8, 1877, with the great Hegelian? Did Scudder carelessly take over the two names from Bertocci? There is no Walter Baur to whom they could correctly refer. The writer has been unable to communicate with Scudder. In a letter dated June 24, 1947, Bertocci says he thinks he got the names directly from Tennant, who may have slipped. Tennant, July 5, 1947, writes, ". . . Prof. Bertocci should have written 'F. C. Baur . . . and D. F. Strauss' . . ." To one familiar with New Testament criticism this confusion of names is as though one were to make reference to "the great American philosopher *Thomas E.* Dewey"! The slip is typical of a problem. The historical records of Christianity are often dealt with by scholars who do not know the history of the critical study thereof.

7—Thomas Henry Huxley, *Science and Christian Tradition,* Appleton and Company, 1893.

8—Op. cit., p. 287.

9—Op. cit., p. 192.

10—Op. cit., p. 1.

11—This thesis is not concerned so much with Tennant's theism (or deism) as with the empirical method which his work exemplifies.

CHAPTER I

TENNANT'S PSYCHOLOGICAL GENETIC APPROACH TO KNOWLEDGE

As a true empiricist, Tennant begins his philosophy with *prima facie* facts.

> The one fact which every school of philosophy can accept as common ground, is the existence of so-called knowledge of so-called actuality by so-called persons: whatever knowledge, actuality and persons may turn out on examination to be.[1]

Prima facie facts are the crude material of all investigation. "If to set out from fact, and to keep in touch with fact, be called empiricism, then, whatever else be found necessary, the empirical method is the *sine qua non* for knowledge of actuality of any sort."[2]

The one fact which, Tennant believes, constitutes the common ground of all schools of philosophy, proves on examination to be bi-polar, one pole being "so-called actuality," the other pole, "so-called knowledge . . . by so-called persons." If one were to start with the former pole, says Tennant, his investigation would prove to be some form of *a priori* rationalism or dogmatism.[3]

To begin philosophy as Plato does, with the question of "so-called actuality," that is, to begin with the order of being (*ordo essendi*), involves the assumption that we already know the *ratio essendi* (rational cause or ground of being). Tennant regards Plato's assumption of mathematics as the paradigm of knowledge, as the original sin (*"pecatum originans"*) of philosophy.[4] For Tennant ". . . the first things of Plato or Spinoza are last things."[5] This is true because the rational ground of being is not normally known until after being itself is known; and being is known, not necessarily in its own order, but in the order of experience.

Tennant makes a further distinction within the Platonic-Spinozistic field of "so-called actuality," introducing the term *ordo concipiendi,* order of conceiving. "If one may venture to coin a name for Spinoza's order, so as to be able to speak of it without begging the question of its identity with the order of being, I would call it the *ordo concipiendi.*"[6] For some rationalists the *ordo concipiendi* is the *ratio essendi,* and as such determines the *ordo essendi.* The *ordo essendi* may be knowable but it is remote from the beginning of knowledge. The *ratio essendi* is certainly unknown at the beginning. That the *ordo concipiendi* is a proper place of beginning is pure rationalistic assumption. Against rationalism, Tennant would have philosophy pursue (1) the order of knowing, (2) the order of being, and afterward (3) the reason of being and (4) the order of rational conception, if any.

Tennant develops further reasons for pursuing the *ordo cognoscendi*[7] (order of knowing), arguing that to pursue the *ordo concipiendi* would imply a concealed assumption of both the knowledge process and of the possibilities of pure thought. To pursue the *ordo essendi* would likewise imply a concealed assumption of understanding of the knowledge process along with ontological reality. To pursue the *ratio essendi* would again imply concealed assumptions both as to the knowledge process and as to the ontological ground of things. Contrasted with these three possibilities, pursuing the *ordo cognoscendi* involves no "concealed assumption or foregone conclusions."[8] This method simply observes the knowing process itself as it goes along.

Tennant thinks he sees a relationship in *prima facie* fact which clearly points to the proper place of beginning for philosophy. Whereas we have no right to assume initially that physical or material objects are the *ratio essendi* of sensation, we can know, and this seems to be for Tennant a fundamental intuition, that sense-data are the cause of knowledge. He says

> That sense-data are the *ratio cognoscendi* [reason of knowing] of the physical world, i.e., the conceptual world of science and common sense, is undoubted and indubitable . . .[9]

Now, if it is indeed "undoubted and indubitable" that sense-data are the ground of all knowledge of "the conceptual world of science and common sense," it follows that an investigation of the knowledge process from the genetic point of view, the *ordo cognoscendi,* is the only proper point of beginning for empirical philosophy. Tennant holds that we must

> . . . set out from the observable facts concerning mentality, as these are constituted at the level of experience-organization involved in the presumptive knowledge that we employ in the conduct of life; or rather, as they are analyzed and reduced to system in the science of psychology. These facts are by no means pure data, but they are our only data.[10]

It may be critically observed at this point that Tennant's statement that sense-data (the data observed in the *ordo cognoscendi*) are also "the *ratio cognoscendi* of the physical world," is in itself a "concealed assumption" or "foregone conclusion." Tennant protests that the causal relation between sense-data, and the process of knowledge, is "undoubted and indubitable." On the contrary, the history of skepticism and the history of rationalism show that such relation can be, and has been, doubted. However, the present purpose is not to criticize but to state Tennant's view of things. He believes it inevitable that empirical philosophy must begin with the genetic analysis of the process of knowledge. This genetic analysis is the essence of his psychology.

For Tennant, by definition, psychology is the study of the occurrence of "so-called knowledge . . . by so-called persons." Analytical psychology takes over presumptive knowledge in the crude form from common sense, and studies it scientifically. Genetic psychology attaches special significance to the order of genesis of the knowledge process as it occurs in experience. That psychology is "the only starting point for a science, and, therefore, for philosophy (other than vain deceit), of actual experience . . ."[11] is a statement repeated and emphasized throughout Volume I of Tennant's *Philosophical Theology,* and throughout his *Philosophy of the Sciences* and his *Nature of Belief.*

Classification of Tennant's Psychology

Tennant's psychology is the psychology of his teacher, James Ward, whom he frequently quotes, and always with approbation.

James Ward's Psychology

The psychology and philosophy of James Ward (1843-1925), Tennant's mentor, are treated in Chapter IV of Bertocci's *Empirical Argument*. Ward studied psychology in Leipzig in 1876. Thereafter he lectured in Cambridge on psychology, modern philosophy and education. Bertocci[12] and Tennant[13] regard Ward's article on psychology in the *Encyclopaedia Britannica* as a "famous" and "great" work. The article first appeared in the ninth edition of *Britannica,* and was enlarged by Ward for the eleventh edition, which was published in 1911. Bertocci says, "His lifelong dream was realized in 1918, when his *Psychological Principles,* which turned over anew the psychological soil in England for the sake of a better sowing, was printed."[14] Tennant[15] indicates that he regards Ward's *Psychological Principles* as "the greatest single work, of any age, on the human mind."

James Ward was the author of the article on *Herbart* in the eleventh edition of *Britannica.*[16] He speaks with approval of Herbart's rejection of the doctrine of mental faculties. Ward's psychology is not strictly Herbartian, but as Bertocci notes,[17] Ward was influenced by Herbart.

The unsigned article on James Ward in the eleventh edition of *Britannica*[18] states

> His psychology marks the definite break with the sensationalism of the English school; experience is interpreted as a *continuum* into which distinctions are gradually introduced by the action of selective attention; the implication of the subject in experience is emphasized; and the operation in development of subjective, as well as natural, selection is maintained.

Tennant's Atomism[19]

If the various schools of psychology are roughly divided into two classes,[20] the more or less atomistic schools on the one side, and the more or less wholistic (not to say Holistic) on the other side, the psychology of Tennant and Ward would fall decidedly on the atomistic side.

Heidbreder is evidently in error in listing James Ward as one of the precursors of the functionalism of the University of Chicago. Functionalism would clearly fall upon the wholistic side of a theoretical dividing line. Heidbreder points out that

> Dewey's article, "The Reflex Arc Concept in Psychology," published in 1896, marks the starting-point of functionalism as a definite movement. The import of this much-discussed paper is that psychological activity cannot be broken into parts or elements but must be regarded as a continuous whole. Like James, Dewey was attacking psychological atomism . . . It was Dewey's thesis that distinctions like that between stimulus and response are purely functional and are based not on actual differences in existing reality, but on the different roles played by given acts in the total process.[21]

But on page 206, after mentioning German and French writers whose works lent themselves readily to functional concepts, she says

> In England, James Ward, in his famous article "Psychology" in the *Encyclopaedia Britannica,* not only recognized but emphasized the activity of the self or subject . . .

Then after describing the psychology of G. F. Stout and of Harald Höffding, and indicating that the latter "treated psychological processes as modes of activity . . . in which the whole mind operates . . ." she continues

> Functionalism at Chicago showed no disposition to minimize these anticipations of its teachings.

It is true that James Ward "emphasized the activity of the self or subject," but this self or subject is a distinguishable ontological entity, not by any means a function*ing*, but a function*er*. The activity, or function*ing,* of this self, is not really wholistically, but on the contrary, quite atomistically regarded.

In insisting that Tennant's psychology is on the atomistic side of a theoretical dividing line, it must be made clear that Tennant himself opposes *extreme* atomism. He says in fact, "When psychology was young, atomic theory dominated physics and was obsessive enough to induce resort, in mental science, to misleading and irrelevant analyses."[22] He further explains, "Indeed, the ultimate actual and concrete bit of experience, prior to analysis by conceptual thought, is not a sensum or an aggregate of sensa, but a stretch of change, within which particular sensa come to be discriminated."[23] Again, "Consciousness is not given in atoms; its smallest portion is a process, and its simplest portion is complex."[24]

Perhaps in view of these statements Tennant's psychology should be called molecular rather than atomistic. However, the atom itself is now known to be more complex than the molecule used to be thought to be. Tennant builds up his psychology out of complex, dynamic bits, but they are *bits* nevertheless. Relative to those types of psychology which are included within the term *Gestalt,* or "field theory," the descriptive term "atomistic" as applied to Tennant's psychological views, is by no means unfair.

In all the long discussion of psychological matters in Volume I of his *Philosophical Theology,* Tennant makes no reference to *Gestalt* psychology or to field theory in any form, although by the date of the publication of this first part of his *magnum opus* (1928), *Gestalt* psychology had already produced a considerable body of influential literature.[25] In his *Philosophy of the Sciences,* published in 1932, in chapter two entitled "The Relation of the Psychology of Knowledge to Philosophy of the Sciences," Tennant at last takes cognizance of *Gestalt* psychology, as a movement with which he finds it necessary to make peace. His own genetic psychology leads him to say that "the facility with which we now perform a complex act of perceiving a sparrow has been acquired."[26] He notes here that the genetic account of perception, emphasizing the "act of combining impressions with residua, images, etc." appears to differ from the views "recently furnished by the school of the *Gestalt* psychology." Tennant makes reconciliation in his own mind by means of a mistaken statement to the effect that "the *Gestalt* psychologists tell us . . . that . . . *Gestalten* in most cases do not correspond to . . . physical objects or things, such as a sparrow." Tennant has surely misread his *Gestalt* literature. He concludes "The *Gestalt* psychology may knock another nail in the coffin of sensationalism, but it is compatible with the genetic theory of knowledge."[27] The compatibility thus claimed is not that of consanguinity; it is a kind of peace with a foreign element which has moved into the neighborhood.

Tennant and Sensationalism

Tennant's psychology does not belong on the wholistic side. The development of his genetic psychology has not been from within the development trend of field-theory systems. Accordingly, in showing that Tennant rejects sensationalism, it should be admitted that the historical roots of his psychology run back deep into Locke and the sensationalistic school. Tennant says ". . . genetic psychology is not nowadays committed to sensationalism . . . Sidgwick did not refute the genetic theory of knowledge but only sensationalism."[28] His use of the word "nowadays" seems to admit the origin of genetic psychology within the field of sensationalism.

Tennant seems anxious to make it known that he rejects sensationalistic psychology. He makes derogatory remarks on the subject of sensationalism, for example, on pages 33, 37, 39, 117, 369, and frequently elsewhere in Volume I of his *Philosophical Theology*. One might even say "the lady protests too much, me thinks."[29] There are, however, two clear points[30] in which Tennant makes good his disavowal of sensationalism.

(1) His "emergentism." He argues that Sidgwick "overlooked that genesis includes epigenesis, or the growth of something into something else, in which the nature of the 'something else' is partly determined by the 'something'; and consequently his strictures apply to what has been called the naturalist's fallacy, but not to the genetic method."[31]

(2) His "mind itself." With reference to the dictum *nihil est in intellectu quod non fuerit in sensu* (there is nothing in the intellect which was not in sense), he accepts Leibnitz's amendment, *"nisi ipse intellectus"*[32] (except the intellect itself). He declares that the mind itself "performs, from the first, more than passive reception of *sensa.*"

Tennant certainly clears himself from charges of being a *mere* sensationalist, but this by no means exempts him from the charge of essential atomism.

Associationism

Tennant's psychology is a system of atomistic associationism; not the associationism of "connectionism" or of "conditioning" based on the anatomy of the nervous system, but of the old-fashioned doctrine of "association of ideas" as taught by English empiricists from Hume to John Stuart Mill.

Detailed Analysis of Tennant's Psychology

It has been pointed out that Tennant's empiricism begins in psychology. His psychology is called "genetic," in that he endeavors to investigate the genesis of experience, and, as he says, pursue the *ordo cognoscendi* (order of knowledge) rather than any assumed *ordo essendi* (order of being).

The investigation of the *ordo cognoscendi* might be considered epistemology rather than psychology. Indeed, it leads to a systematic theory of knowledge. However, Tennant[33] justifies the term psychology on the basis of Ward's usage. His point is quite defensible on the ground that his emphasis is on *ordo,* not primarily on *cognitio.* His initial inquiry is not, What is the nature of true knowledge? but, What is the beginning and what is the process of so-called knowledge? Tennant's philosophy gives highest priority to the empirical question, How does experience begin?

A convenient, and a basic, point of beginning in the study of Tennant's doctrine of the psycho-genesis of knowledge may be found in an investigation of his use of the German word *Erlebnis,* with the corresponding verb *erleben,* "living through," or "living out." The term is introduced early in Chapter Two of Volume I of his *magnum opus* (p. 15 f.). Tennant points out in the preceding context that the word "consciousness" alone does not offer a satisfactory point of genesis, since it has many different and paradoxical meanings.[34] The word consciousness is used frequently with "slovenliness of speech," "confusion of thought," "using of an ambiguous term as if it were univocal [so as to] reduce argumentation to a kind of punning, and substitute verbal legerdemain for logic."

It had been suggested to Tennant that "experience" be substituted for the "much abused, and now hopelessly indefinite, word 'consciousness'." He thinks, indeed, that "experience" would be preferable to "consciousness" because the latter word by its etymology suggests only the cognitive function of mind, and that in the sense of "awareness." On the other hand, "experience" is too broad a term for a point of beginning, because it includes physical and vital occurrences such as pulse and digestive processes. A stone may have the experience of impact. A dead frog's nerve may illustrate "irritability." Tennant is groping for a term to include "the class of acts and states . . . which we are wont to regard as *sui generis,*" a term broader than "awareness," yet exclusive of merely physical or physiological experiences. The term *Erlebnis* alone is still too broad. It would, indeed, exclude mere physical occurrences, but it would include biological processes.

Tennant finally settles down on the term "consciousness" defined as "a peculiar kind of *Erlebnis.*" By consciousness as a kind of *Erlebnis,* he means to include a field broader than self-consciousness, including "anoetic experience, or mere sentience unaccompanied by awareness of it." He draws a distinction between "tasting and awareness of tasting," and takes conscious *Erlebnis* as including the former (mere sentience) as well as the latter.

At this point Tennant, having introduced the term *Erlebnis,* calls attention to it in the following words:

> The useful term *erleben* will recur. It denotes not knowl-

> edge, even the simpler kind called acquaintance, but being that is prior to knowing. Whether we know a mental *Erlebnis* immediately or mediately, is not of vital importance; but the view adopted here is that a mental state such as longing, is, like colour, directly apprehended, not inferred, by self-conscious subjects. (Note 2, p. 15 f.)

Example of Tennant's Usage of *"Erlebnis"*

From this point forward Tennant frequently employs the term. At the risk of seeming incoherent I shall present here several scattering examples of Tennant's usage of it in different contexts. That the examples given reveal a basic trend of thought, will be apparent.

> . . . without the peculiar kind of *Erlebnis* which is the basis of cognition, there can be no knowledge of being, as distinct from being.[35]

Attention is said to be an activity which "must be *erlebt* as a process" different from biological processes such as normal heartbeat.[36]

Experience from the psychological point of view is *"rapport,"* "not only change, but also interaction." These psychological changes are *erlebt,* otherwise we should never have obtained the notion of activity in ourselves or in other things.[37]

> . . . knowledge presupposes *erleben,* and [the interpretation] by which alone we could pass from pure sensatio to perception of a thing, is subjectively originated . . .[38]

The subject is said to "have, or *erleben,*" experiences.[39]

It is suggested that the teleological interpretation of empirical data results from "ejection of that subjectively *erlebt* by oneself, into bodies behaving like our own."[40]

> Attribution of causal nexus does not always wait on accumulation of instances; nor is it always the case that constant sequence obliges us to leap from *post hoc* to *propter hoc.* Hume's derivation being . . . abandoned, and the old associationism [in this respect] having become obsolete, psy-

> chology can now suggest no possible origination of the category of efficient cause, save that of projection into the not-self, of what we experience when acting and acted upon. Effectuation is an ultimate, the notion of which could no more be forthcoming, unless the process were *erlebt,* than that of blue, unless blue were sensed.[41]

Tennant develops this thought of causality at length in his appendix, note J, pp. 386-402.

> The I describable as 'now aware of red', and the I describable as 'aware of that awareness of red', cannot . . . be identified [by cogency of logic]; yet their identification is necessary . . . Unless the 'awareness of red' were *erlebt* by it, the second I could have no inkling of red having been sensed, or of sensatio having occurred.[42]

Tennant shows that the theory that the subject of experience is a "series of separate psychoses aware of itself as a series," means, in terms *Erlebnis,* that the subject somehow draws the past and the future into the present.[43]

The theory of William James which Tennant calls "the series theory" of the subject, each successive subject "absorbing" the experience of the previous subject, would mean that subject number two in some sense must *erleben* the experiences of subject number one; subject number three must *erleben* the experiences of subject number two, and so on.[44]

Tennant points out that Kant, for whom the unity of apperception was an important doctrine, ". . . allowed himself to imagine the successive selves, conceivably constituting the abiding self, as substances analogous to elastic balls capable of communicating their motion to one another through impact."[45] Apropos of this theory Tennant remarks[46] that *Erlebnis* is the last thing we should conceive of as being transferable, and that elastic balls are "about the last things with which subjects can be compared . . ."

Tennant holds that if, as we say in ordinary speech, two persons have a "common sorrow," we mean that they are "similarly affected" by the same public object, not that the emotion of either, as a mental occurrence, can have been *erlebt* by the other individual.[47]

Although "consciousness" lies within the field of mental processes, not all that is designated as "mental" lies within "the unique *erleben* called consciousness . . ."[48] Consciousness with the "uniqueness of *erleben*" is the basis for the assertion of mentality, but mentality is said to occur where there is "no such *Erlebnis*."

> Conation [is described as] . . . the *erlebt* want of continuance or of change in presentation, which tends to bring about its fulfillment and is consequently causative . . .[49]
>
> . . . the concept of inertia . . . presupposes activity, as *erlebt* and known . . .[50]
>
> Prediction of voluntary behavior . . . would . . . often require the *erleben* of the subject.[51]

The concept of *Erlebnis* is in the background of all of Tennant's psychology. There are many passages in which the concept is indicated without the use of any form of this word. The above instances of Tennant's usage are sufficient to indicate the meaning which Tennant attaches to the term. In common language the fact of *Erlebnis* indicates that individual conscious experience cannot be conceived as the sum of a series or chain of contiguous experiences, but must be conceived as a unitary, numerically single whole. *Erlebnis* is the aspect of continuity in a perduring consciousness.

Without the use of the term *Erlebnis,* others have pointed out the same general fact. Just as Tennant points out, "ejection of that subjectivity *erlebt* by oneself into bodies behaving like our own," so Charles Hodge (*Systematic Theology,* Scribner 1871, Vol. I, p. 209) similarly suggested that we postulate causality in nature by inference from our own experience of putting forth effort to get results.

Hume (*Enquiry,* Section 7, Part I, pp. 146-154, in the Hendel edition) anticipates the position taken by Tennant.

> It may be said, that we are every moment conscious of internal power; while we feel, that, by the simple command of our will, we can move the organs of our body, or direct the faculties of our mind. An act of volition produces motion in our limbs, or raises a new idea in our imagination. This influence of the will we know by consciousness. Hence we acquire the idea of power or energy; and are certain that we

> ourselves and all other intelligent beings are possessed of power. (p. 149)

This Hume tried to answer

> A man, suddenly struck with palsy in the leg or arm, or who had newly lost those members, frequently endeavors, at first to move them, and employ them in their usual offices. Here he is as much conscious of power to command such limbs, as a man in perfect health is conscious of power to actuate any member which remains in its natural state and condition. But consciousness never deceives. [Sic!] Consequently, neither in the one case nor in the other, are we ever conscious of any power. We learn the influence of our will from experience alone. (p. 150 f.)

Hume is doubtless attempting to answer Descartes' argument (*Principles of Philosophy,* Part IV, Section CXCVI, p. 200 f. of Open Court edition). Hume's amazing words "but consciousness never deceives," are logically basic to his rejection of the fact that we are conscious of putting forth effort and producing results thereof. Of course consciousness sometimes deceives, *and that in the observance of sequences,* as well as in the observance of our own efforts and their results. If Hume was right in thinking that consciousness is, nevertheless, a source of valid knowledge of natural laws based on observance of sequences, then the same fallible consciousness may be a source of valid knowledge of efficient causality in our own actions.

The "Subject" of Tennant's Psychology

It might be suggested that a discussion of the possible existence of the psychological subject should be postponed to the chapter on Tennant's metaphysical conclusions. Indeed, the existence of such a subject is a metaphysical question. Much ground can be covered in several important types of psychology without direct attention to the question of what it is that functions psychologically, all attention being directed to the functioning. However, there are types of psychology which require certain presuppositions for their understanding. Just as one could not discuss the psychology of Herbart without some description of the apperceptive mass, just as one could not understand Titchener without some knowledge of the existential structuralism of consciousness, and just as one could not understand Thorndike without some knowledge of the physical nervous system, so for the understanding of the psychology of Tennant, it is necessary to know that he believes in the theory of a non-material substantive entity which functions as a subject, psychologically.

Tennant's view of conscious *Erlebnis* is similar to an opinion expressed by David Hume in the appendix to his famous *Treatise of Human Nature.*[52] Hume writes

> . . . upon a more strict review of the section concerning *personal identity,* I find myself involv'd in such a labyrinth, that, I must confess, I neither know how to correct my former opinions, nor how to render them consistent . . . (p. 103).
>
> When I turn my reflection on *myself,* I never can perceive this *self* without some one or more perceptions; nor can I ever perceive anything but the perceptions. 'Tis the composition of these, therefore, which forms the self. (p. 104)
>
> Philosophers begin to be reconcil'd to the principle, *that we have no idea of external substance, distinct from the ideas of particular qualities.* This must pave the way for a like principle with regard to the mind, *that we have no notion of it,* distinct from the *particular perceptions.*
>
> So far I seem to be attended with sufficient evidence. But . . . when I proceed to explain the principle of connexion, which binds them [perceptions] together, and makes us attribute to them a real simplicity and identity; I am sensible, that my account is very defective . . . If perceptions are distinct existences, they form a whole only by being connected together. But no connexions among distinct existences are ever discoverable by human understanding . . . Most philosophers seem inclin'd to think, that personal identity *arises* from consciousness; and consciousness is nothing but a reflected thought or perception. The present philosophy,

> therefore, has so far a promising aspect. But all my hopes vanish, when I come to explain the principles, that unite our successive perceptions in our thought or consciousness. I cannot discover any theory which gives me satisfaction on this head.
>
> In short there are two principles, which I cannot render consistent; . . . *that all our distinct perceptions are distinct existences, and that the mind never perceives any real connexion among distinct existences.* Did our perceptions either inhere in something simple and individual, or did the mind perceive some real connexion among them, there wou'd [[53]] be no difficulty in the case. For my part, I must plead the privilege of a sceptic . . . (p. 105 f.)

In the words "the principle of connexion which binds them [perceptions] together," and "the principles that unite our successive perceptions in our thought or consciousness," Hume most certainly recognized the fact of perduring conscious *Erlebnis.*

It is strange that Tennant takes no note[54] of this congenial passage in Hume. Perhaps not so strange, however, in view of the fact that philosophers as influential as Hume are customarily summarized, conventionalized, and then sterilized,—being put away in neat packages for convenient reference and not read for what they have to say for themselves. Hume is referred to and summarized in a great variety of philosophical works, but Hendel[55] is an exception in making reference to this important appendix to the *Treatise*. Even Windelband[56] is guilty of this omission. He notes that book I, part IV, section vi of the *Treatise of Human Nature* takes a skeptical attitude toward the "self." He says[57]

> The objectionable consequences which resulted from this for religious metaphysics perhaps occasioned Hume, when working over his *Treatise* into the *Essays,* to let drop this which cut most deeply of all his investigations.

Windelband, indeed, points out here a significant fact, namely that Hume dropped his extreme skepticism as to the "self," in the *Essays* published in 1748. One would think that so great a scholar as Windelband would have taken cognizance of the appendix to the *Treatise* at this point in his discussion of Hume.

One would also expect that so great a scholar as Tufts, the translator, would have taken cognizance of the same. Indeed, Tufts did supplement Windelband's discussion of Hume's doctrine of causality in a fine-printed translator's note, almost a page in length, but he failed to supplement Windelband on the point now under discussion.

It is not at all uncommon to find passages quoted from Hume as though they were his unalterable conclusions and convictions, which passages prove on examination to be tentative and exploratory in their character. Hume was a true skeptic in that he doubted his own doubts as much as he doubted conventional beliefs.

Hume's skeptical remarks on the "self" are frequently quoted and much discussed. Boyd Henry Bode[58] quotes as follows:

> For my part, when I enter most intimately into what I call myself, I always stumble on some particular perception or other, of heat or cold, light or shade, love or hatred, pain or pleasure. I never can catch myself at any time without a perception, and never can observe any thing but the perception. When my perceptions are removed for any time, as by sound sleep, so long am I insensible[59] of myself, and may truly be said not to exist. And were all my perceptions remov'd by death, and cou'd I neither think, nor feel, nor see, nor love, nor hate after the dissolution of my body, I shou'd be entirely annihilated, nor do I conceive what is farther requisite to make me a perfect non-entity. If any one upon a serious and unprejudic'd reflection, thinks he has a different notion of himself, I must confess I can reason no longer with him. All I can allow him is, that he may be in the right as well as I, and that we are essentially different in this particular. He may, perhaps, perceive something simple and continu'd, which he calls himself; tho' I am certain there is no such principle in me. (D. Hume, *Treatise on Human Nature,* p. 252. Selby-Bigge edition.)

This is, indeed, skepticism as to the "self" but toward what is the skepticism, precisely, directed? Not toward the existence of perduring conscious *Erlebnis*, but toward direct knowledge of the "self" as an immediate object of perception. Hume begins this very section with the words, "There are some philosophers, who imagine we are every moment intimately conscious of what we call our Self . . ." It is this opinion (Locke's) which he seeks to refute.

But the "self" as an object immediately known by direct perception is not Tennant's point, and would not be defended by him. Tennant's point is not that "self" is immediately or directly perceived, but that it is *inferred* from the data of experience.

Tennant argues that the question *how* the self is known is unimportant compared with the question *whether* it is known. He finds the theory of "direct acquaintance with the I . . . unconvincing." He says

> If the I be apprehensible to itself with (*ps*) immediacy, it is strange that all sentient beings are not fully self-conscious, and that the human being only becomes self-conscious at a certain stage of his mental development. We are thus empirically confined to the alternative view, that the pure ego, if known at all and not merely thought or supposed; is but known about, mediately and reflectively or intellectively.[60]

In other words the "self" is known by inference. The fact of retention, which is the precursor of memory, suggests that there is a something which retains. The fact of perduring conscious *Erlebnis* suggests a something which *erlebt*. As Tennant says, "The I is known *in* the me, agents in acts, cause from effects."[61]

It is only Hume's rejection of causality in the ontological world which makes it impossible for him to see the principle which unites perceptions as a very significant sign from which to draw the inference of the perduring self. Hume was, in fact, within a hair's breadth of the inference which Tennant makes. Critics of Hume have pointed out[62] that whereas Hume denied causality in the objective world, he had no hesitation in referring to causality in the world of ideas. Hume unblushingly refers to association of ideas as the *cause* of our absurd notion that there is such a relationship as *causality*. Associations of ideas causing ideas gave Hume no difficulty, although surely he could not directly observe causality between ideas, any more than he could observe causality between billiard balls. Hume, indeed, says in the appendix from which a passage is quoted above,[63] "Did our perceptions either inhere in something simple and individual, or did the mind perceive some real connexion among them, there would be no difficulty in the case." Without realizing, as has been said, that Hume was attacking *direct perception* of the "self," which Tennant also rejects, Tennant answers Hume's oft quoted statement as follows:

> Far shrewder than some of his modern followers was Hume, who initiated scepticism as to the abiding subject, but sagely abstained from offering a better substitute. Hume merely recorded that he could not find the I among his impressions. This does not cause us surprise. But had he coupled his view, that impressions are subjective modes, with the platitude that acts involve agents, he might have found at least the momentary ego. He concluded that the I is but the me, and the me but a bundle of impressions. Yet all the time he needs—and the need is ominous—to distinguish the I from the me: *e.g.* in the words "when I enter into myself." It certainly would have been awkward to talk of a bundle of impressions entering into a bundle of impressions. Again, he might have found the I, had he looked for the string which bound the sensations into a bundle: had he examined memory, comparison, etc., more carefully. He assumed, like his recent followers, that the flux of a person's presentations must be a flux for an external observer which is what a series, constituting the contents of a person's mind, is not. He tells us that he never caught himself without a perception; but he might as truly have said that he never caught a perception without himself: a subject never catches *an* impression that is not *his* impression, or without being there to catch it.[64]

Tennant, without reference to Hume, but contemplating the same data, holds that the mind does infer some real connection among perceptions, and that our perceptions do inhere in something. Tennant chooses to call this something the subject of experience.

Tennant's Dualistic[65] *Metaphysics and Psychology*

Although Tennant is a dualist, he is not a middle-of-the-road Cartesian dualist, and is far from being a Calvinistic dualist. Were one to set forth a system of Calvinistic, Cartesian, integrationistic, realistic dualism, one would begin with three facts given in the data of experience; (1) Thought occurs; (2) Motion occurs; (3) Interaction between thought and motion occurs. From these data, one would proceed to point out, first, that thought implies a thinker (*res cogitans*); secondly, motion implies a moving thing (*res movens*); thirdly, interaction implies causality or efficiency (*efficientia*) on the part of both the *res cogitans* and the *res movens.*

Were this Tennant's metaphysics, he could well allow psychology to shift for itself in the field of functioning, reserving the metaphysics of the psychological subject for a separate discussion. Tennant, however, is not nearly as clear in his inference from motion to a moving thing, as he is in the inference from thought to a thinking thing. Tennant, like Dewey, was at one stage of his thinking an idealist. Scudder points out[66] that in 1904 Tennant took a strong idealistic position, indicating that theism could only be defended upon the ground of the rejection of realism for idealism. However, Scudder shows that by 1918 Tennant had come to the position of realistic dualism, arguing as Scudder says, "that God might be conceived as the creator of matter (atoms characterized by inertia) as well as of monads and minds." Whereas realistic dualism is maintained in all of Tennant's five books written since the latter date, yet the student of Tennant has the feeling that for him, after all, the *res movens* may prove to be mental, and the motion may prove to be only a form of thought.[67]

It should be said at this point that the dualism of Tennant does not imply any "great gulf" such as Dewey conjures up to make dualism appear awesome and unreal. Dewey never faces the views of the Cartesian interactionist.

Dualism is regarded by its proponents as a practical view of the universe. Just as for many generations the land and the sea were the two important realms of human activity, and the army and the navy were the two practically necessary arms of defense, so for practical reasons the dualist observes that there are two great classes of things in the world of nature. One class of things behaves like cats and dogs and people.[68] The other class of the things behaves like sticks and stones.

Carrying out the land and sea illustration, it develops that in our generation there is a third realm of activity sometimes more important than land or sea, namely, the air. It has now proved practical to divide our military defense into three great branches, army, navy and air force. The air force is not contrary to the army and the navy, but supplementary thereto. Similarly, dualism does not deny the possibility of other realms. It simply maintains that the classification of moving things and thinking things is of immense theoretical importance and of great practical utility. The over-all unified military command, in our illustration, would correspond to the general integration of things in which every reasonable dualist believes.

The dualist is not primarily concerned as to the results of further study of *res cogitans* or of *res movens.* Suppose the thinking things should prove also to be moving things, or composed of moving things, as Democritus and Hobbes taught—suppose they should prove to be materially atomistic in structure—what then? Unless the occurrence of thought is blindly denied, thought still signifies a thinking thing.

Suppose moving things should prove to be also thinking things, each atom filled with life and will, as Bergson and William James thought possible, and as Tennant is inclined to think—what then? Unless motion is declared to be an illusion, motion would still signify a moving thing.

Though every *res cogitans* also moves, and though every *res movens* also thinks (an extremely unlikely supposition), still the distinction between moving things and thinking things would be of immense importance.

With reference to the psychological subject, though not with reference to the material object, Tennant is a clear-cut Cartesian.[69] Tennant begins the second chapter of his *Philosophical Theology* with the words: "The primary crude datum of psychology is the fact that there are selves aware of their own existence and mentality." He then presents Descartes' doctrine of the self in clear and cogent form.

> The ground of belief of a self in its own existence is stated in *cogito ergo sum;* and as that dictum is wont to be regarded as a foundation-stone of modern philosophy, it may fittingly be taken as our starting-point. To Descartes it seemed to assert indubitable truth, because doubting it only reinstates the impugned fact. *Cogitatio,* even when *dubitatio de cogitatione,* is an actual occurrence involving a *res cogitans.* It is a further question *what* this *res* is, but it cannot be nonexistent. To be conscious is to be; in the fact *ego cogitans sum,* being and thinking meet.[70]

Tennant points out that the *cogitatio* of which Descartes is speaking is not sentience, but awareness of sentience, *cogito ergo sum* is not equal to *sentio,* but rather equal to *scio* (*me*) *sentire.* In spite of the *ergo,* the Cartesian proposition is not synthetic, but analytic.[71]

Tennant believes that " 'Awareness' is a meaningless term, a mere nonsense-word denoting nonentity, unless it be an eliptical expression for 'awareness of something by something.' "[72] "No one ever has really dispensed with the subject of consciousness, whatever terms he may have used to hush up its existence . . . If 'the thoughts are the thinkers', *they* are subjects, if objects 'play de role' of subjects, that is but to say they *are* subjects."[73] Tennant holds that "experience . . . is from the first a duality," and "possesses intrinsic duality."[74] ". . . consciousness . . . is from first to last a duality in unity."[75]

Development of Genetic Psychology

It has been pointed out that Tennant builds his psychology bit by bit. It must not be forgotten that each bit is understood to be dynamic and that the entire process of human experience is construed as an integrated, dynamic, if still atomistic, whole.[76]

In the following enumeration of steps in the development of genetic psychology, the reader will readily recognize old fashioned "associationism," not the associationism of "conditioning," or of "connexionism," but as indicated above, the doctrine of "association of ideas" with which conditioning and connexionism are scarcely on speaking terms.

Tennant holds that the psychological subject is characterized by three important activities, feeling, conation, and attention. Attention develops from the interaction or *rapport* between subject and object. Attention is the distinctive activity of the psychological subject which gives rise to all cognition.

Cognitive activity is characterized by retention (the precursor of memory), differentiation, and complication. To these three "irreducible" primary cognitive activities[77] Tennant later[78] adds perception of things, which involves reification, and localization, with development of "the cruder notions of substantiality and persistence, the germs of the categories of universal experience."

In discussing the question "What is in the senses?" Tennant accepts the dictum[79] *nihil est in intellectu quod non fuerit in sensu,* as this dictum is amended by Leibnitz, *nisi ipse intellectus.* It has been noted above that the Leibnitz amendment saves Tennant from sensationalism.

The word sensation in common usage may refer to the object sensed or to the subjective experience of sensing. In order to discriminate these two meanings Tennant uses the word sensum to indicate the former and sensatio to indicate the latter. Tennant defines the sensum as "that element in the objective which may be said first to break in upon the experient, because all other types of experience, that we can distinguish, are known to presuppose it."[80] As an apologetic for the terms, Tennant says, "If dog-Latin need apology, the inadequacy of the English tongue for philosophical purposes, is sufficient excuse; dog-English is the only other alternative by which to make up for our deficiency of inflexion."[81]

Tennant does not intend to imply that there is in actual experience a separation between sensum and sensatio, or between sensation, in either of its usages, and the higher forms of intellectual activity. He indicates[82] that there is no acquaintance without some knowledge about the object of acquaintance, no *kennen* without *wissen.*

In connection with the word sensum, Tennant brings out his artificial distinction between the word object spelled with a lower case o and Object spelled with a capital O. The former object indicates the object of individual experience, the latter Object indicates the Object of the experience of human society. The Object is a basis of exchange of ideas in language, intercommunication, discourse. Tennant makes a similar distinction between real and Real.[83]

At a later point Tennant further develops his artificial terminology by adding the Greek lower case letter *omega* as a symbol of the ontological object postulated behind phenomena. Elsewhere[85] Tennant uses the Greek uncial *sigma* to represent the socialized subject and lower case *sigma* to represent the sensum in the mind of the individual subject. Lower case *sigma* is the same as object. The Greek *phi* represents the phenomenal object. Scudder[86] develops these artificial symbols in diagrammatic form.

The next step above sensation is perception. Here again Tennant subdivides his terminology using the word percept for the object perceived and perception or perceptio for the act of perceiving. Perceptio and percept are actually commingled. A percept "has a foot in both worlds,"[87] the subjective and the objective. The percept varies with the "time span" of the observing subject.[88] A man may regard a grain of sand, an ant hill, or all of Long Beach Island, each as a single object, depending on his point of view. A man born blind cannot perceive a color, though he may have an intellectual apprehension of it[89].

Under the heading of perceptio Tennant points out the distinction between *psychic* (represented by the Greek letter *psi*) and *psychological* (represented by *ps*).

Above perception in the scale of psychological experience is *conception.* Tennant[90] holds that formation of a concept develops in social psychology. The isolated individual would scarcely possess formulated conceptions.

One of the most important concepts developing in experience is the concept of the body.[91] Through experience with the body and the concept thereof, further fruitful conceptions develop.

Tennant next presents the relationships between impressions (sensations and perceptions) and images. Impressions lead to "after images," "recurrent sensations" and "sensebound images" which Fechner called "memory after-images."[92] These phenomena lead to the image of true imagination. "Impressions are primary, images are secondary . . . there is nothing in the complex image of a non-actual thing, such as a mermaid, that was not previously 'in the senses'."[93] "The imaginal, . . . is the source of ideas." "If images, metaphysically regarded, be due to *rapport* with the Real, then Being is cause as well as occasion, of the source of ideas: while the cause of ideas, as distinct from their image-sources, will be their own subjects solely.[94]

Next Tennant takes up in order the subjects of memory, imagination and memory, knowledge and memory, ideation, abstract thinking, universals (*in rebus*), and language.[95]

> Incipient memory . . . is not founded on the assumption of a Real past: it is the first intimation we have, as to there being such a thing as a Real past.[96]
>
> It may be noted in passing, that memory thus plainly involves the numerical identity of the subject remembering with the subject who originally perceived what is remembered, and so is the main basis of our adult belief in a perduring self.[97]
>
> In memory, we believe in the actuality of the remembered thing; in imagination, we do not.[98]

Tennant holds that there is a gradual "distillation-process" between image and abstraction.

> It is impossible, because of continuity of development, to say where imagination or perception or even sensatio ends, and where ideation, culminating in pure conception, begins. There is embryonic conception implicit in the simplest perception; were this not so, there would be no psychological accounting for the existence of our developed knowledge.[99] . . . in the fact that partial images can be fused into a new image, as in the case of the centaur, we find the beginning of a process of subjective manipulation, which has only to

> undergo development, to yield the higher products of the human art, which we call creative thought.[100]
>
> There must be some intellective synthesis, even developed perception of one's own body and other human bodies, prior to recognition of other selves with which to communicate. There must be some measure of self-consciousness. It is no question of which came first, perception of bodies or self-consciousness, in finished form like hen and egg; but of *pari passu* development. The distinguishable factors of sense and understanding were there from the first. Thus was provided the basis from which individual experience may rise to the ejective stage, and so to social intercourse. Knowledge of the self, of other selves, and of the world, advance together from a vague and humble first stage, by reacting each on the other.[101]

Tennant concludes the outline of his psychology with two more chapters on the self, entitled respectively, "The Self and the Soul" and "The Empirical Self and Personality." He justifies the division of his discussion of the self, taking it up both at the beginning and at the end of his psychology, on the ground that whereas the self is a *logical presupposition* of the entire analysis of genetic psychology, it is the *last idea* to be reached in the *order of knowing*.[102]

Tennant argues that the idea of the self arises from bodily sensations which are experienced. Within the body arises a "generic image of the self," "the germ of the idea of the soul inside us."[103]

Knowledge of other selves arises not through telepathy[104] but through inference from observation of bodies which behave like ours.

> All presumptive knowledge, common sense and science, rest on an assumption which each of us has to make, but for which no strictly and coercively logical proof is forthcoming. It is the assumption that ejection of that subjectivity *erlebt* by one's self, into bodies behaving like our own, yields knowledge, and knowledge such as we do not attain, in the first instance, by any other way.[105]

The self is said to be "presupposed in all knowing."[106] Tennant argues that the idea of the empirical self is "a construction made by an inner agent."[107]

Tennant in this section of his work[108] reiterates and emphasizes the fact that the ego is not the direct object of immediate perception. It is known by *Erlebnis,* by indirect knowledge, by inference, not directly. As for the term "pure ego" he states[109] that he uses it conventionally and would not cling to the name. He says, "All that is here meant by it is the abiding subject to which the name 'soul' can be given."

In answering the argument of the presentationists, Tennant adds somewhat to the algebraic symbolism of his terminology. M stands for the empirical me. Lower case italicised *p* stands for perception or perceiving. Those who argue that the subjective ego is an unnecessary hypothesis and that the empirical me explains all the facts, would agree to the proposition, "M. *p*. O." This means the empirical me perceives an object of public experience. But Tennant argues that if so much is conceded, then must necessarily follow the proposition, "I. *p*. (M. *p*. O.)," which means I perceive that the empirical me perceives an object of public knowledge. In this case the I must be taken as a concrete individual if the proposition "M. *p*. O." is a concrete fact.[110]

Tennant devotes ten pages of very effective arguments to the analysis of the characteristics of mental lives. Mental *Erlebnisse* are said to be characterized by three outstanding qualities: (1) temporal continuity, (2) unity and orderliness, (3) individuality.

Tennant concludes, "If a soul is not known to exist, on the evidence and reasoning that have been submitted *a fortiori* neither is a tree known to exist and have a life history."[111]

Tennant's doctrine of the soul is disappointing in its development. In the midst of his psychology and as introductory to his discussion of social psychology Tennant presents six assertions as to the essence of the soul and three possibilities as to its substance.[112] The material of this section is metaphysics rather than psychology, but we must recognize the right of a teacher of philosophical theology to regard certain parts of metaphysics, particularly the essence and nature of the "soul," as falling within the bounds of psychology. The outline of this section will merely be noted here, and those aspects of it which have to do with the further development of Tennant's psychology pointed out.

Tennant argues that the soul is (1) simple, (2) individual, (3) characterized by idiosyncrasy, (4) not a *tabula rasa,* (5) not an existence without an essence, nor an essence without an existence, (6) not merely phenomenal, but also ontal.

As to the substance of the soul, it is said to be (1) substantival, not merely adjectival; (2) relatively permanent; (3) active or efficient. Tennant here touches upon the field of social psychology insisting that the soul is both individual and social. It does not realize itself except in its social relations, but it does not coalesce to become an oversoul.[113]

With reference to the origin of the soul, Tennant (in a very superficial manner and without reference to any of the historical literature[114] on the subject) presents the three views commonly studied in theology, (1) traducianism, or the theory that the soul is genetically produced, as the body is, from the parents; (2) special creationism, the theory that God creates an individual soul whenever a child is begotten, (3) pre-existence. The last mentioned theory is adopted by Tennant and the other two are treated with superficial scorn.

Tennant seems to refer his view of uncreated pre-existence to Leibnitz. The passage is not too clear. After rejecting creationism and making reference to Leibnitz' doctrine of pre-existence, he says, "... theism is confronted with the alternative that souls are not created but self-existent."[115] Now Windelband[116] and Weber[117] both present Leibnitz as teaching a distinctive doctrine of creation. Charles Hodge[118] quotes Leibnitz as saying

> Dieu n'est point nécessité, métaphysiquement parlant, à la création de ce mond . . . Cependant Dieu est obligé, par une nécessité morale, à faire les choses en sorte qu'il ne se puisse rien de mieux.[119]

Tennant's chapter, "The Empirical Self and Personality"[120] is a study in heredity and social heredity. He declares that there are three factors which determine personality, (1) the pure ego or the soul which is the source of individual idiosyncrasy and the root of self-determination. This factor is not derived from heredity but is an eternal existence which by some mysterious process, metensomatosis or embodiment,[121] has become the ego of an individual member of the human race. Tennant's insistence upon the pure ego or the soul as a separate, active factor in personality, not to be accounted for by the process of heredity, introduces peculiarities, discrepancies and difficulties, all through his discussion of hereditary psychology and social psychology. (2) The second factor in determining personality is "the sum of inherited endowments commonly known as the nature with which we are born . . ."[122] (3) The third factor is the sum total of our social nurture and physical environment, called "social heredity."[123]

True to his pre-existentism, Tennant argues that "one's parents are but foster parents of one's soul." The context of this amazing statement is as follows:

> What is chiefly meant in biological science by heredity, is the observed continuity of germ-plasm, the fact that like begets like. But, in the psychological realm, continuity of soul-substance is not observable: it appears that one's parents are but foster-parents of one's soul. Nevertheless, resemblance between parent and child obtains on the mental, as well as on the bodily, side. And so long as 'mind' does not mean or include the subject, which cannot be said to be transmitted, or to be a chip of soul-block, there is no inconceivability about connexion of the objective content of the unborn ego's experience with the transmitted germ-plasm.[124]

Tennant seems to have a strange idea of "continuity of germ plasm." His use of the phrase "continuity of soul substance," as though it were an analogous expression, surely does not indicate clarity of thought. No one supposes that the hands and feet and physiological members of a child are continuous with the corresponding members of the parents' bodies! Surely the phrase "chip off the old block," in its well established literary usage, has nothing to do with continuity of substance part for part.

Recognizing that the term "mind" is sometimes used as a synonym for the ego (Bode's usage), Tennant prefers to say that the mind is "owned" by an ego. He thinks that genius is characteristic of the ego itself, so that genius is "innate but not inherited."[125]

By this esoteric distinction he means that the ego (distinguished from ability or capacity) is itself the "genius" of the individual. This ego-genius is eternal, has existed forever, but is somehow or other united with the individual member of the human race before his birth. Thus the distinction "between inneity and heredity" is maintained to Tennant's satisfaction.

Tennant's discussion of inherited instinct is not particularly illuminating. He says

> Instincts have been defined as "original tendencies of consciousness [i. e. the conscious subject] to express itself in motor terms in response to definite but generally complex stimulations of sense" (Baldwin). They are inherited reactions to environment, markedly adaptive, fixed in the species; and their continued exercise requires provision for their fulfilment.[126]

The quotation from "Baldwin" is not a part of the definition of instinct in Baldwin's *Dictionary,* though Baldwin is one of the coauthors of that definition. It is doubtless quoted from some of his other writings, but Baldwin probably is not responsible for the thought any more than for the words which Tennant has inserted in square brackets.

Tennant's introduction of the German word *Anlage,* as a term broader than instinct, broader than talent (which is partly acquired) seems somewhat vague but nevertheless useful. The *Anlage* includes a part of what would be classed as social heredity. It is "given ready-made to its owner; it is not of his making, but the ancestrally prescribed handicap with which he starts his earthly race." It is identified with his "disposition," not with his "character" which is, at least in part, an achievement of his soul or genius.[127]

On the subject of original sin[128] as in every aspect of the sin question, Tennant is more Pelagian than Pelagius or Arminius ever dreamed of being. Tennant admits that certain dispositions may be regarded as *fomes peccati* (fuel of sin) but he states that because it is not volitional, it is not capable of moral evaluation.

In discussing social heredity[129] Tennant points out that the term "mental" is broader than the term "conscious." Consciousness takes place within the *bios* (life) or mind. The mind, however, includes unconscious activity, "subjective functionings beyond the reach of introspection."[130]

It is in the discussion of mental heredity (which for Tennant excludes the ego) that Tennant introduces the terminology of Titchener's structuralism or introspectionism. These terms are employed repeatedly.[131]

The Freudian "censor" and subconscious "dungeon" are rejected.[132] Neither Titchener nor Freud is mentioned by name, though the views of the former are favorably regarded. Such of Titchener's vocabulary as Tennant uses may well have been derived from Wundt, from Leipsig, through Ward. Tennant is not at all careful to inform his readers of his sources.

In discussing the sub-liminal and supra-liminal aspects of consciousness and in describing the threshold, focus, and margin, Tennant again draws ammunition for his thesis that the ego is a substantive entity. The phenomena observed in memory and recall are here elaborated with a larger psychological apparatus than in his earlier chapters. Tennant's argument is that the phenomena of consciousness demand *Erlebnis,* and *Erlebnis* cannot be granted without granting also something which *erlebt,* or in other words a *res cogitans.*

The physical explanation of memory, though accepted as true in part, is rejected[133] as unable to account for the fact that the subject matter of memory goes in and out of consciousness.

Comparison of Bode's View of the Self

If further apologetics is necessary for devoting so much time to the discussion of the psychological subject, in that section of Tennant's work which is devoted to psychology rather than to ontology, it may be of interest to point out that some other writers in the field of philosophical psychology have found it necessary to dispose of the "self" one way or another, in order to allow psychology to proceed. The book, *How We Learn,*[134] by Boyd Henry Bode, Professor (now emeritus) of Principles and Practice of Education in Ohio State University, written from a point of view diametrically opposite to that of Tennant, will furnish a valuable basis for comparison.[135]

Bode, a representative naturalist and disciple of John Dewey, (1) found it necessary to devote a considerable amount of space to the discussion of the nature of the mind or self in a book on the subject "How We Learn." This fact would seem to provide some justification for Tennant's devoting so much space to this matter in the psychological portion of his "Philosophical Theology." It appears that Bode (2) has failed to make out a valid case against the existence of a *res cogitans.*

Summary

Tennant's psychology may be summed up in brief as a system of associationism, differing from the sensationalistic associationism of the English empiricists from Locke to John Stuart Mill (1) in that Tennant holds to "emergentism," and (2) in that he regards the soul itself as one of the determining factors, not merely a *tabula rasa* upon which sensations write themselves. Tennant's term "genetic psychology" indicates his special plea that all sciences must be built upon psychology, since psychology follows a certain order of genesis of the knowledge process.

Conclusions

To insist that "psychology," as Tennant defines it, is of necessity the basic science of sciences, and that all philosophical investigation must follow the *ordo cognoscendi,* may be taken in the sense of a mere tautology. Of course the order of knowing is the order of knowing, whatever that *order* may be. However, it seems clear that Tennant intends no such tautology. He holds that the order of knowledge is a fixed and necessary order, discoverable and analysable in what he calls psychology.

The "*prima facie* fact" with which Tennant sets out "the existence of so-called knowledge of so-called actuality by so-called persons," if taken at its face value would mean no more than that the dualistic concept exists at least as a concept. This might well be countered by the monistically stated *prima facie* fact, that inquiry goes on. Here again Tennant intends no mere *prima facie* fact, which may prove to be illusory, but an *existent situation.*

Whether Tennant (following Descartes) is correct in regarding dualism as an analytical result of *cognitio* rather than a synthetic inference, is a subject for further study. The writer will later inquire whether dualism is not a synthetic inference from *cognitio* through *cogitatio* to *cogito,* whence the conclusion, *ergo sum.* It will be suggested that the claim that dualism is an analytic judgment,—or that "the existence of so-called knowledge of so-called actuality by so-called persons," is an "existence" to be analysed, and not, perhaps, an illusion to be rejected,—is a case of surreptitious introduction of unrecognized data of synthesis.

The question will be raised, whether the *ordo cognoscendi* does begin, or must begin, with Tennant's *prima facie* fact, *cognitio,* or whether this may be but one among many possible points of beginning. The further question will be raised whether Tennant really pursues the order of knowing, or the assumed order of knowing knowledge,—the *ordo cognoscendi,* or the *ratio ordinis cognoscendi cognitionis.* It may be argued that if the order of knowledge is fixed, the proper place of beginning an investigation is the *reason* for the fixity. This would result in rationalism or at least in a form of apriorism, which Tennant rejects. On the other hand if the order of knowing is not fixed, not bound by any *a priori* principle, it may follow that scientific investigation may properly begin with chemistry or archaeology, or any situation in which cognition occurs.

Tennant argues that the structure of scientific knowledge is a building with only one entrance, the psychology of the *ordo cognoscendi.* Perhaps on the contrary it should be regarded as a ship in which we are born and live and die; a ship (or a world in space-time) in which we may begin to study scientifically wherever we begin, mentally, to creep.

If the beginning of investigation need not be in any fixed order of knowing, it will follow that Tennant's colossal study of the supposed development of knowledge through the supposed processes of associationism is irrelevant to the basic question of empirical method. Thus Tennant's psychology as a whole may be set aside, and yet his empiricism, contrary to his own analysis of it, may prove to be independent of any particular psychology, and of any particular order of knowledge.

On the constructive side, regardless of Tennant's psychological system, certain data should be noted here which may prove valuable in a later synthesis of empiricism. Tennant shows that (1) All conscious experience involves *Erlebnis.* (2) Cognition and *Erlebnis* as data of experience may form the basis of synthetic (*not* analytic, not intuitive) inferences to the existence and nature of the subject or self. (3) The data of experience may form the basis of synthetic inferences to the existence and nature of other subjects, or selves. (4) The data of experience may form the basis of synthetic inferences to the existence and nature of the objective world. (5) The data of experience may form the basis of synthetic inference to a theistic world view.

APPENDIX A

Bode's View of the Soul

In his introduction[136] Bode takes the position that

> . . . the question of what learning is can be answered only in terms of what the mind is; and our conception of the mind, in turn, will decide what we consider to be "good" for the mind, in terms of an educational program. Thus if the mind has faculties, it is desirable that these should be trained; if the mind is some kind of function, as present-day psychologists are disposed to hold, then education will set itself some other purpose.

Bode is obsessed with the idea that if the mind is thought to be a something, a *res cogitans,* education is committed to false principles, chief of which is "faculty psychology," or the theory of training innate mental faculties. On the other hand, he argues that if the mind is held to be a function of nothing, just a function, education may be truly progressive, being liberated from such false theories.

Bode's chapters II and III entitled respectively, "A Contrast Between Mind and Matter" and "The Mind as a Substance or Entity," present with considerable accuracy (without reference to Tennant) the view of the mind, or self,[137] to which Tennant adheres,—the mind being regarded as a substantive entity, probably non-material, interacting with material substantive entities. Bode is noteworthy for the fact that he recognizes the interactionism of dualism, never recognized by Dewey. It is refreshing to find a philosophical naturalist who does not bring forward the irrelevant accusation that dualism introduces discontinuity and "a great gulf."

Bode is certainly mistaken in his primitive cultural anthropology. To class primitive animism as monistic vitalism or hylozoism, to fail to recognize its essential dualism, and to declare that for primitive man there was "no 'dead' matter" is far from the facts.[138] The *orenda* and *manito* of the North American Indians and the *mana* and *atua* of the Polynesians are regarded as extra-physical invisible powers. In fact, it is experience with "dead matter" in the form of a dead body from which "soul" has departed, which gives to primitive animism its universal dualistic character. Animism regards physical objects, stones, weapons, volcanos, thunderclouds, etc., as *inhabited* by invisible "souls."

With the development of the idea of dead matter behaving mechanistically, which Bode mistakenly holds came later than primitive monistic animism,[139] came the notion of mind as something to be distinguished from matter. Bode argues[140] that the conception of mind was compelled to make a clean break with the whole system of mechanics. He insists that for dualists, mind is not an extended thing, mind is not to be found within space in any sense either extended or localized.[141]

Bode, indeed, notes that Descartes believed that the non-material mind is located in the brain "and more specifically in the pineal gland."[142] He continues "such words as *soul, mind, consciousness,* are commonly associated with an entity or spiritual substance that resides somewhere in the head."[143] But in spite of the fact that all reasonable dualists hold that the mind is located in space and functions through a physical spatial material entity, the body,[144] Bode takes the position that " . . . the Cartesian statement that it [the mind] is located in the brain is merely a figure of speech."[145]

Having abolished the spatial localization of mind by his own fiat, Bode proceeds to show that this abolition from space, amounts to a total annihilation of the entity. He defines belief in a substantive mind[146] as belief in "an existence which exists somehow without existing anywhere in space . . . a substance which is not located anywhere." He argues further,[147] "How can a nonspatial, disembodied 'idea' do anything to the brain? . . . How [can] the square root of minus two . . . help to lift an automobile out of the ditch?" Bode then quotes from William James[148] a remark quoted by James from W. K. Clifford.

> It will be found excellent practice in the mental operations required by this doctrine to imagine a train, the fore part of which is an engine and three carriages linked with iron couplings, and the hind part three other carriages linked with iron couplings; the bond between the two parts being made up out of the sentiments of amity subsisting between the stoker and the guard.

It would be all very well to argue that it is impossible to believe in the existence of a substantive entity which exists nowhere,—it would be all very well *if* any dualist had ever held such an opinion!

Bode's argument becomes quite peculiar when he discusses the nature of physical objects. By the simple process of confusing *weight* with *mass,*[149] Bode dissolves material things into universal nothings. The incredulous reader should examine this paragraph for himself. Bode argues that since weight would theoretically disappear if all physical relationships were removed, therefore

> If all relations were destroyed, it [the physical object] would likewise lose its color, its position, and presumably all its other properties. Since weight is an integral part of the object, [Sic!] the dependence of weight upon relationship to other objects seems to imply that the object extends beyond the surface of its 'skin' or exterior. The object is literally everywhere.

Bode is not referring to the fact that whereas in ordinary physical processes mass is constant, regardless of relationship, yet theoretically mass increases to the limit of infinity as a physical object approaches the speed of light. Bode is not here speaking of anything as interesting or complicated as the study of mass in modern physics. Although later he does quote Einstein[150] to the effect that *mass* and *energy* may not be essentially distinguishable, he nowhere refers to the relation between mass and weight in either ordinary physical processes, or in processes approaching the speed of light. His blunder is quite simple. He has forgotten that in elementary physics, mass is not the same as weight.

At a later point in his argument[151] he first forgets that the refraction and reflection of the rays of light in a rainbow can be spatially measured and located with reference to the sun and the earth's surface. He next forgets that the reflection of rays of light in mirrors is physically and spatially measurable. Thirdly, he forgets that when "modern physics . . . rejects the idea of absolute position, which is incompatible with the field concept . . ." it nevertheless, has a very clear and workable conception of *relative* position and motion in relative space. Following these three blunders he concludes, "Every object is literally everywhere."

Bode cannot conceive of a non-spatial soul, but evidently material objects which are everywhere give him no trouble!

As between Bode's physical objects which are everywhere and his caricature of the theory of mind existing nowhere, it is difficult to determine which is the more absurd. Certainly Tennant as a dualist would adhere to neither. He would defend the theory of the existence of a self or mind or soul which exists *somewhere* with relation to a physical body. He would doubtless plead ignorance of the extended or non-extended character of this non-material substantive entity.

As indicated above Bode is under a powerful obsession that if one believes in the existence of mind as an entity, he is thereby committed to certain false theories of education. He proceeds to attach to the doctrine of a substantive mind a variety of educational fallacies including faculty psychology, self-development according to Rousseau, self-discipline, classical tradition, and *even behaviourism.*[152] He declares[153] that if one accepts the theory of a substantive mind, "All learning is a process of developing or training the mind, and it can be nothing else."

This would seem on the very surface to be a clear case of *non sequitur.* It would appear to be just as logical to say that the theory that an individual has two legs would inevitably lead education to devote all its attention to making the individual a marathon runner. As a matter of fact, there have been countless thousands of individuals who believed in the theory of substantive mind, who thought that the development of that mind was of little, or negative, value as compared with the attainment of some mystical experience (neo-Platonism), or the reaching of Nirvana (Hinduism), or self-abnegation (Buddhism).

But Bode proceeds: "From the standpoint of dualism between mind and matter, we seem to be committed to the conclusion that a choice must be made between Rousseauism [self-development] and classicism."[154] "Let us remind ourselves again that the approach of classicism is provided by dualism of mind and matter."[155] "In the end, the whole trouble with the classical theory of education traces back to the assumption of dualism of mind and matter."[156]

For Bode, the dualistic theory of a substantive mind is worse than the "love of money," in educational theory. It is "the root of all evil."[157] It is particularly culpable as the source and ground of faculty psychology.

> The inference that training a faculty, such as reasoning, through courses in mathematics will strengthen it in other areas, such as salesmanship, or politics, or courtship, is based on the belief in a substantive mind and the existence of faculties.[158]
>
> The case against faculty psychology and formal discipline is strengthened still further when we examine the theoretical considerations that are involved. The theoretical argument, which will be presented in the next chapter, shows that the old conception of mind . . . has become wholly untenable . . .[159]

Apart from the faculty psychology, Bode's attitude of blaming a variety of educational evils on the dualism of the mind-substance theory is illustrated in the following quotations:

> The fruit of the mind-substance theory is the doctrine that education is a process of inner development or self-development. As to the nature of this process there are conflicting views. Rousseauism, the classical tradition, and formal discipline disagree widely among themselves, but they all stem from a common stock. They all rest on the assumption of the contrast between mind and matter—a contrast which is of such a nature that education can have no task other than the development or cultivation of the immaterial, nonspatial entity which we commonly designate as mind or soul.[160]
>
> . . . if we assume a substantive mind, then education

> becomes a matter of developing this mind in some form or other. The alternatives that are open to us in that case are, respectively, Rousseauism, the classical tradition, and formal discipline.[161]
>
> Dualism has tended to separate intellectual insight from both skill and appreciation, and to separate these latter from each other. The result has been a tendency to cultivate each of them in isolation from the others.[162]
>
> When viewed in terms of psychological theory, the history of education takes the form of a perennial struggle over the problems that grow out of the dualism of mind and matter. In pragmatic theory this dualism is superseded by the unity of the "field." Mind takes the form of a function within this field.[163]

On the following page after listing rejected theories of education, the last of which is *behaviorism,* Bode remarks, "All these points of view [Sic!] owe their character to the initial assumption of dualism."[164]

Bode begins his concluding chapter with a reiteration of his constant theme.

> If we start with the premise that reality consists of mind-substance and matter-substance, it follows at once that education can have no other purpose than to develop the potentialities of the mind; in other words, we are committed in advance to some form of the doctrine of formal discipline.[165]

Bode's own view of the mind, as a function of no substantive entity, is expressed in the words

> If mind is a function, there can be no room for a faculty psychology. If this function is a function of a 'field,' then education cannot be a process of organizing mental states. Lastly, if this function is a process of progressively shaping up the environment so as to bring an ongoing activity to a successful termination, then education cannot be identified with a mechanistic stamping in of S-R bonds.[166]

The writer might apologize for such an extended mass of quoted material. But it has seemed necessary to quote Bode's own words at some length and in a variety of passages, since his opinions will seem, to some at least, quite preposterous, and some of the readers might imagine that the writer has misconstrued Bode's doctrine.

With this material of a typical naturalistic anti-mentalist before us, how may it be evaluated from the point of view of the mentalistic dualism of F. R. Tennant?

In the first place, it may be remarked that Bode himself cannot manage his own vocabulary in such a way as to speak consistently of the mind as though it were not a function of some entity. On page 218 he says, "The reference to a field is intended to show that sense qualities may vary, in the case of different observers, without necessitating the inference that these qualities are located in a mind." From Tennant's point of view the word *mind* is not the important consideration, if it is admitted that there are "different *observers*." In all intelligible use of language, an observer is a something which observes. If Bode is squeamish about applying to an observer the word "mind," it would be a waste of time to argue about the use of the word.

Secondly, it may be remarked that including behaviorism as one of the erroneous educational theories which owe their character to the initial assumption of dualism, Bode is giving way to mere name-calling. He himself points out[167] that behaviorism is not dualistic.

As to Bode's oft-repeated charge that belief in a substantive mind leads to faculty psychology, that is, to educational practice based on the theory of developing the various alleged innate faculties of the mind, it should be pointed out that Bode's view is devoid of reasonable probability and utterly contrary to historical fact. In the history of education Herbart is noteworthy for his rejection of faculty psychology, but he is also conspicuous for his belief in a substantive mind or soul.

Of course there have been believers in the substantive mind who have also adhered to faculty psychology, but let anyone take such a simple and neutral source as the *College Outline Series* volume on the history of education;[168] let anyone examine summaries of the educational theories of Martin Luther, John Calvin, John Milton and the Puritans, August Hermann Franke, and others who believed in a substantive mind, and see if by any stretch of argument, he can show any significant positive correlation between such belief and faculty psychology with its educational implications.

Hume, who is quoted by Bode, and by many others, as opposed to the doctrine of the substantive mind, was a great *adherent* of the theory of faculty psychology. Reference to the different "faculties" of mental processes constantly recur in his writings. Separate faculties were quite congenial to Hume's *doubt* of a substantive mind. On the other hand, no one could be stronger than Bishop Butler and Immanuel Kant, believers in the "soul," in holding to the *essential unity* of the functioning of the mind. If there *is* a substantive mind, faculties would have to be secondary, if recognized at all, and could not be *separate* functions.

If Bode had wished to bring out verifiable historical fact, he should have mentioned the connection between faculty psychology and the brain-mind theory of Phrenology. According to the article on "Phrenology" in *Britannica,*[169] "The fundamental hypothesis which underlies phrenology as a system of mental science . . . is that mental phenomena are resolvable into the manifestations of a group of separate faculties."[170]

Sidney Hook's sarcasm has the virtue of answering Bode's basic assumption that a theory of what mind is, necessarily governs the theory of education. Professor Hook says[171]

> Whatever the differences between Aristotle, Aquinas, and Rousseau on other points—and they are vast—all assert that from the true nature of man the true nature of education follows logically. (p. 6.)
>
> From the fact a thing is, it doesn't follow that it must or should grow. From the belief that a thing should grow, we do not yet know what direction the potentialities of growth should be encouraged to take. (p. 8.)
>
> Potentialities may not all be realized but, in a certain sense, everything realized may be regarded as potential prior to the moment of its actualization . . . stupidity . . ., is . . .

> also an antecedent potentiality . . . desirability is an affair of fruits, not of origins. (p. 12.)

In ridiculing the theory of Hutchins, Sheen and Adler that since "man is a rational animal," "the end of human education should be the cultivation of reason . . ." Professor Hook continues

> . . . a proposition about what he [man] is no more uniquely entails what he should be than the recognition of the nature of an egg necessitates our concluding that the egg should become a chicken rather than an egg sandwich. (p. 16.)
>
> Man is also the only animal that can will to commit suicide. Does it follow that education should, therefore, be a preparation for death? Man is also the only animal that ruts all year round. What educational corollary does this unique trait entail? (p. 17.)

All of the above is a part of Professor Hook's elaboration of the "experimentalist" philosophy of education. If he correctly represents experimentalism in thus with vulgar[172] scorn rejecting the doctrine that the nature of man determines the nature of education, then certainly Bode is wrong in assuming that a theory of the nature of man's mind will necessarily determine educational theory.

1—F. R. Tennant, *Philosophical Theology*, Cambridge University Press, 1928, Vol. I, p. 4.

2—Ibid., p. 5.

3—The term "rationalism" is used here to indicate the view that being is governed by rational form, or that the *ordo essendi* (order of being), is governed by the abstract forms of reason as *ratio essendi* (reason of being). Rationalism is not synonymous with reasonableness. It is the contrary of irrationalism and the contradictory of non-rationalism.

4—Ibid., p. 8.

5—Ibid., p. 8.

6—F. R. Tennant, *Philosophy of the Sciences*, Cambridge University Press, 1932, p. 22.

7—Ibid., pp. 24-32.

8—Ibid., p. 24.

9—Op. cit., p. 4.

10—Op. cit., p. 1.

11—Op. cit., p. 3.

12—Op. cit., p. 93.

13—*Philosophical Theology*, Vol. I., p. 117.

14—Op. cit., p. 93.

15—*Philosophical Theology*, Vol. I., p. vii.

16—*Encyclopaedia Britannica*, Vol. 13, pp. 335-338.

17—Op. cit., p. 92.

18—*Encyclopaedia Britannica*, Vol. 28, p. 320.

19—The metaphorical terms atomistic and wholistic are used rather commonly in the literature relating to *Gestalt* psychology.

20—For the purpose of philosophical comparison of systems of psychology, the writer has found the reading of the following three comparative works, in the order of their publication, a very valuable experience.

Murchison, Carl, editor, *Psychologies of* 1930, Clark University Press, 1930.

Heidbreder, Edna, Ph.D., *Seven Psychologies*, D. Appleton-Century, 1933.

Henry, Nelson B., editor, *The Psychology of Learning* (The Forty-First Year Book of the National Society for the Study of Education, Part II, Section I, "Theories of Learning"), University of Chicago Press, Distributors, 1942.

The word "psychology" may properly be applied to a wide range of systems of thought, some of which systems are almost totally exclusive of others. The broad perspective of such works as these three in comparative theories, should be kept in mind in passing judgment upon Tennant's system of psychology.

21—Op. cit., p. 209.

22—Op. cit., p. 37.

23—Ibid., p. 38.

24—Ibid., p. 42.

25—A possible exception to this statement is found in the following words, ". . . genius does not require, for its explanation, the uprushing of ready-made insight . . . the nearer we approach the recovery of the first stage of experience, the more of the marginal, and the less of the focal or even of a field, would there seem to be in it." (*Philosophical Theology*, Vol. I, p. 119 f.) If he has field theory in mind here, he is not friendly to it.

26—F. R. Tennant, *Philosophy of the Sciences*, Cambridge University Press, 1932, p. 57.

27—Ibid., p. 58.

28—*Philosophy of the Sciences*, p. 56.

29—William Shakespeare, *Hamlet*, Act III, Scene 2.

30—The two points, emergentism, and the mind itself, in which Tennant differs from sensationalism, will be discussed at greater length under appropriate headings below.

31—Op. cit., p. 56.

32—*Philosophical Theology*, Vol. I, p. 33. I have been unable to trace the source of this dictum. Descartes rejected it in *Meditation VI* (pp. 88 ff. of the Open Court Edition) and in the *Discourse on Method*, Part IV, (p. 40 of Open Court edition). In the latter passage he refers to the saying as a maxim accepted by "the philosophers of the Schools."

33—*Philosophical Theology*, Vol. I, p. 9.

34—Scudder (*Tennant's Philosophical Theology* by Delton Lewis Scudder, Yale University Press, 1940, p. 43) says, "The beginning of all knowledge is 'consciousness' which involves an experient or existent being undergoing consciousness and an object of which this existent being or subject is conscious." This is not incorrect, but it is misleading if the qualifying words are not clearly apprehended. The beginning of knowledge, for Tennant, is not "consciousness," but consciousness viewed as *Erlebnis*.

35—*Philosophical Theology*, Vol. I, p. 15.

36—Ibid., p. 28 f.

37—Ibid., p. 29 f.

38—Ibid., p. 49.

39—Ibid., p. 73.

40—Ibid., p. 74.

41—Ibid., p. 180.

42—Ibid., p. 76.

43—Ibid., p. 86.

44—Ibid., p. 87.

45—Ibid., p. 87. Tennant points out that this opinion is expressed only in a footnote found on page 363 of the first edition of Kant's *Kritik der reinen Vernunft*. This footnote has completely disappeared from the second and later editions.

46—Op. cit., p. 87.

47—Ibid., p. 90.

48—Ibid., p. 111.

49—Ibid., p. 127.

50—Ibid., p. 133.

51—Ibid., p. 135.

52—First published 1739-40. May be consulted conveniently in *Hume Selections*, Charles W. Hendel, Jr., editor, Scribner 1927. The appendix is found on pages 103-106 in the Hendel edition.

53—The spelling of wou'd and shou'd is from the source quoted.

54—Tennant comments on Hume's use of mental causality (*Philosophical Theology*, Vol. I, pp. 391, 394 f.).

55—Op. cit., Introduction, p. xvii.

56—*A History of Philosophy* by Dr. W. Windelband, translated by James H. Tufts, Ph.D., Macmillan, second edition in English, 1901, reprint 1938.

57—Ibid., p. 474, note 1.

58—Bode, Boyd Henry, *How We Learn*, D. C. Heath and Company, 1940, p. 111.

59—The word "insensible" is printed "sensible" in the Hendel edition (Scribner 1927) but this does not fit with the context.

60—*Philosophical Theology,* Vol. I, p. 77.

61—Ibid., p. 77.

62—See for example the remarks on Hume in *Agnosticism,* by Robert Flint, Scribner, 1903.

63—Hendel's edition, p. 106.

64—*Philosophical Theology,* Vol. I, p. 88 f.

65—The reader will, of course, recognize that this is not moral dualism. It is in no way related to the Parsi doctrine of the eternal dualism of good and evil.

66—Op. cit., pp. 29 f.

67—At this stage of the investigation I am describing Tennant's philosophy as dualistic because the content of it corresponds to the content of ontological interactionalistic dualism. He believes in thinking things and moving things as identifiable substantive entities. His words, "inasmuch as there can be no foundation for spiritualism, or even dualism, unless we know ourselves to be abiding subjects . . ." (Ibid., p. 94) indicate his position. He would prefer to be called a spiritualist rather than a dualist. He sometimes describes his philosophy as one of pluralism, and, tho he does not take the step, he contemplates the possibility that "we [may] exchange our pluralisms for an ultimate monism . . ." (Ibid., p. 387 f. See also p. 395, line 15). His preference for spiritualism rather than dualism as a term to designate his own philosophy is clearly illustrated in the following sentence: "Their [mass-particles] ontological equivalents may well be spiritual in which case the notion of cause, as used of psychic beings such as ourselves, may, with necessary qualifications, be applied to them; while if dualism be embraced, they must at least be credited with activity requisite for *rapport* with us, in our constitution (out of them) of the phenomenal world." (Ibid., p. 401) Whether or not the writer is justified in describing Tennant's ontology as dualistic, will be more clear after the study of Tennant's metaphysics.

68—The inclusion of animals in the category of thinking things is not Cartesian.

69—Descartes' famous doctrine *cogito ergo sum* is found in the *Discourse on Method* (first published in 1637) Part IV, and in the *Meditations* (first published in 1641), Meditation VI. These are conveniently available, the former in Number 38, and the latter (together with *Principles of Philosophy*) in Number 51 of the 'Philosophical Classics' published by The Open Court Publishing Company.

It is in Meditation VI that Descartes says (Open Court edition, p. 88), "I was readily persuaded that I had no idea in my intellect which had not formerly passed through the senses," a persuasion which he rejects in favor of innate ideas. Section IV of the *Discourse on Method* (Open Court edition, p. 38) is noteworthy also for a phrase ascribing certain perfections to the nature of God in the words, "infinite, eternal, immutable, omniscient, all powerful . . ." This was published in 1637. It may well have been basic for the famous definition of God drawn up by the Calvinistic Westminster Assembly (1643-

1649), "God is a spirit, infinite, eternal, and unchangeable, in His being, wisdom, power, holiness, justice, goodness, and truth." Historical Calvinism and Cartesianism have much in common.

70—*Philosophical Theology,* Vol. I, p. 13.
71—Ibid., p. 83.
72—Ibid., p. 17.
73—Ibid., p. 18.
74—Ibid., pp. 18, 19.
75—Ibid., p. 20.
76—Ibid., p. 45.
77—Ibid., pp. 40 ff.
78—Ibid., p. 69.
79—Ibid., p. 33.
80—Ibid., p. 36.
81—Ibid., p. 16, note 1.
82—Ibid., p. 37.
83—Ibid., p. 20 f., note 2.
84—Ibid., p. 220 ff.
85—Ibid., p. 220.
86—Delton Lewis Scudder, *Tennant's Philosophical Theology,* Yale University Press, 1940, pp. 42 ff.
87—*Philosophical Theology,* Vol. I, p. 45.
88—Ibid., p. 47 f.
89—Ibid., p. 46.
90—Ibid., p. 44.
91—Ibid., p. 49.
92—Ibid., p. 54.
93—Ibid., p. 52.
94—Ibid., p. 53, text and note 1.
95—Ibid., p. 57-68.
96—Ibid., p. 58.
97—Ibid., p. 59.
98—Ibid., p. 59.
99—Ibid., p. 61.
100—Ibid., p. 66 f.
101—Ibid., p. 69.
102—Ibid., p. 75.
103—Ibid., p. 71.
104—Ibid., p. 73.
105—Ibid., p. 74.
106—Ibid., p. 75.
107—Ibid., p. 75.
108—Ibid., pp. 76, 77, 78.
109—Ibid., p. 79 note.
110—Ibid., p. 81.
111—Ibid., p. 94, note.
112—*Philosophical Theology,* Vol. I, pp. 95-104.

113—Ibid., p. 102.

114—The great Leipzig professor, Franz Delitzsch, (*A System of Biblical Psychology*, second English edition, T. and T. Clark, 1861) might have spared his painstaking efforts, so far as Tennant's work is concerned.

115—Op. cit., p. 103.

116—W. Windelband, *A History of Philosophy*, James H. Tufts, tr., Macmillan, second edition in English, 1901, reprint 1938, p. 424.

117—Alfred Weber, *History of Philosophy*, Frank Thilly, tr., with Ralph Barton Perry, *Philosophy Since* 1860, Scribner, 1925, p. 284.

118—Charles Hodge, *Systematic Theology*, Scribner, 1871, Vol. 1, p. 556.

119—Quoted from Theodicee II, 201; Works, Berlin, 1840, p. 566.

120—F. R. Tennant, *Philosophical Theology*, Vol. I, Chapter VI.

121—Ibid., p. 105.

122—Ibid., p. 105.

123—Ibid., p. 110, note 2.

124—Ibid., p. 105.

125—Ibid., p. 108.

126—Ibid., p. 108.

127—Ibid., p. 109.

128—Ibid., p. 109.

129—Ibid., p. 110 ff.

130—Ibid., p. 111.

131—Ibid., see pp. 111, 114, 115, 116, 120, 122.

132—Ibid., pp. 114 and 120.

133—Ibid., p. 113.

134—Boyd Henry Bode, *How We Learn*, D. C. Heath and Company, 1940.

135—See Appendix A at end of this chapter.

136—Boyd Henry Bode, *How We Learn*, D. C. Heath and Company, 1940.

137—Bode uses the words mind and soul interchangeably. Op. cit., p. 8, note 1.

138—See the article on *Animism* by Dr. R. Benedict, Volume I of the *Encyclopaedia of Social Science*, Macmillan, reprinted 1948, recommended to the writer by Professor John Dewey in a personal letter dated December 8, 1946.

139—Op. cit., p. 14.

140—Ibid., p. 16.

141—Ibid., p. 17.

142—Ibid., p. 24.

143—Ibid., p. 25.

144—This is the position taken by the writer more than ten years ago. (*What is God?* by J. O. Buswell, Jr., Zondervan, 1937, p. 20) "Human personalities are *spatially local*, but so far as we can judge are *not spatially extended* any more than our thoughts are spatially extended. In your consciousness is the thought of a lion, a mastodon, a mountain, an ocean, a constellation of heavenly bodies. It would be ridiculous, however, to ask, . . . How big is the thought in your mind."

145—Op. cit., p. 26.

146—Ibid., p. 108.

147—Ibid., p. 168.

148—Ibid., p. 168. Bode does not say that James (W. James, *Principles of Psychology*, Vol. I, p. 132 and p. 138) characterized Clifford's argument as "an *unwarranted impertinence*."

149—Ibid., p. 213.

150—The writer makes no criticism of the opinion quoted (Ibid., p. 214) from Einstein and Infeld, (*The Evolution of Physics*, p. 257) "Matter is where the concentration of energy is great, field is where the concentration of energy is small. But if this is the case, then the difference between matter and field is a quantitative rather than a qualitative one. There is no sense in regarding matter and field as two qualities quite different from each other. We cannot imagine a definite surface separating distinctly field and matter." This opinion of the great physicists who wrote it is radically different from the conclusion which Bode is advancing. For Einstein and Infeld there are *places* where mass-energy is concentrated, and there are *places* where it is rarefied. These places are *in relative space*, not everywhere as Bode argues.

151—Ibid., p. 221.

152—See quotation below from Ibid., p. 255.

153—Ibid., p. 35.

154—Ibid., p. 50.

155—Ibid., p. 71.

156—Ibid., p. 78.

157—I Timothy 6:10.

158—Op. cit., p. 95 f.

159—Ibid., p. 106. The same connection between substantive mind, and faculty psychology is implied on p. 87.

160—Ibid., p. 107.

161—Ibid., p. 123. Compare the quotation above, Ibid., p. 50.

162—Ibid., p. 248.

163—Ibid., p. 254.

164—Ibid., p. 255.

165—Ibid., p. 279.

166—Ibid., p. 233.

167—Ibid., pp. 176, 201.

168—Merritt M. Thompson, Ph.D., *An Outline of the History of Education*, Barnes and Noble, Revised Edition, reprinted 1944.

169—*Encyclopaedia Britannica*, thirteenth edition, Vol. XVII, p. 850 f.

170—Bode, indeed, takes cognizance of phrenology (Op. cit., pp. 102, 103), in the process of his discussion of philosophical psychology, but he fails to note the significance of phrenology in its historical relation to the doctrine of the substantive mind. F. J. Gall, whose writings and lectures about the year 1800 are considered the beginning of modern phrenology, did, indeed, believe in a substantive mind, but he found it difficult to harmonize his phrenology with the unity of consciousness. He was in constant difficulty with ecclesiastical authorities.

171—Sidney Hook, *Education for Modern Man*, Dial Press, 1946. See especially chapters I and II, "Ends of Education," and "The Nature of Man."

172—As in the sentence last quoted.

CHAPTER II

TENNANT'S VIEW OF THE NATURE OF KNOWLEDGE:

PHENOMENALISM

The study of the nature of knowledge, epistemology, is an intensely active field in current literature. Scarcely an issue of "The Journal of Philosophy" fails to contain one or two articles and book reviews bearing directly upon this subject. "The Scientific Monthly" almost always has something in the field. What is true of these two publications, entirely different in their purpose and clientele, is illustrative of the general trend in current publications in philosophy, science, education, theology and related areas of thought.

Machen's book, *What is Faith?* (Macmillan 1925), brought Pilate's question, "What is Truth?" (John 18:28) into prominence in the thinking of many theologians. Dewey's *Quest for Certainty* (1929) stirred, or perhaps roiled, the springs of truth and knowledge to their depths, for many toilers in the field of philosophy and education. A decade later Brubacher in his *Modern Philosophies of Education*[1] included an important chapter entitled "Epistemological Bases of Education," rather strongly weighted toward the instrumentalism of the progressive education movement. Dewey's *Logic* (1938) is really an epistemology presenting a theory of knowledge with which many of John Dewey's disciples have not yet caught up. The third revised edition of Robinson's *Principles of Reasoning*[2] is basically an epistemology, weighted toward rationalistic idealism. His new chapter entitled "The Logical Significance of Radar Pips"[3] is a very clever and striking illustration of Robinson's theory of knowledge.

The literature just cited is a mere sampling, a mere cupful from the ocean of the vast amount of discussion now going on in the field of epistemology.

The word "epistemology" is from the Greek *episteme,* from *epistamai,* which comes from the root *STA* related to *stasis*, and *ephistemi*. It is interesting that the English word "understand" and the German word *verstehen* (fore-stand) correspond to the Greek word "over-stand" (*epi-stamai*)[4].

Tennant's epistemology is systematically set forth in Chapters VIII to XIII in Volume I of his *Philosophical Theology*. There is supplementary material in his *Philosophy of the Sciences* and *The Nature of Belief*. These six chapters, however, with the extensive appendix notes[5] attached to them, are quite comprehensive in the material they include. They follow a simple, lucid outline. It seems best, therefore, to present Tennant's *Theory of Knowledge* in the order in which its various aspects are taken up in these chapters, bringing in other related materials at such points as they may be relevant.

Transitional

Tennant's Chapter VIII begins with a section lying in the no man's land between psychology, ontology and epistemology. With his artificial distinction between words capitalized and words beginning with lower case letters, Tennant says, "Ten men looking at the sun see each a different object, yet See one and the same Object. [A footnote continues] 'See' and 'see' mean acts psychologically diverse, viz. perception overlaid with conception, and perception proper." (Op. cit., p. 163.)

He continues

> For the Actuality of the Object, we have not: we have what might be compared to circumstantial evidence, overwhelming in its cumulativeness. The Object is conceived, not perceived; and that again is no vouch for its Actuality: for a Euclidean circle is a concept, though no one takes it for a thing. Thus, in seeking to know what Actuality and knowledge are, we have to ask how the concept of a physical Object was got, and what grounds or causes there may be for taking the conceived Object

> of thought or of thought-knowledge, i.e. a concept, to have what some concepts have not—a counterpart that is as Real or Actual as the individual's object is actual. (Ibid., p. 165.)

Epistemology Proper

Epistemology proper begins with Section II (p. 166), entitled "The Forms of Intuition," which leads to discussions of Categories of the Understanding, Thought, and Reason.

Chapters IX and X take up in order Rationalism, Empiricism, Realism, Idealism, and Phenomenalism, the last being Tennant's name for his own view.

Chapter XI treats of Induction and Probability, the very heart of the epistemological problem.

In Chapter XII entitled "Religious Experience," Tennant takes an anti-mystical position.

Chapter XIII, "The Nature and Limitations of Scientific Knowledge," is not as important as the title would suggest, since, in the writer's opinion, Tennant does not get beyond such questions as could be resolved by lexicography. He actually shifts the definitions of his terms when he comes to his *Philosophy of the Sciences.*

The Categories, Aristotle

Tennant's discussion of the categories, or of the "Forms of Intuition," and "Categories of the Understanding," occupies less than twenty pages (pp. 166-183) of Volume I of his *Philosophical Theology.* The subject is of such great interest and the material bearing upon it is so vast, that the writer has with considerable difficulty restrained himself from long excursions. Only the necessary background material is given.

The doctrine of Categories originates with Aristotle. Some have argued that he found the doctrine "ready made and took it over complete from the Academy."[6] But H. P. Cooke[7] states, "... the writings of Plato himself do not seem to lend any support to it [the theory of Aristotle's dependence upon the Academy in the formulation of the doctrine of Categories]," and Cooke adds in a footnote, "Failing positive evidence to the contrary, I take the traditional view that the first nine chapters of this text [*The Categories*] are the genuine work of Aristotle."

Cooke makes the statement[8] that "In ordinary usage *kategoria* rendered in English as 'category' meant nothing more than 'a predicate'." This is intended, doubtless, in the formal sense of the Latin word *praedicare,* to proclaim. A *kategoria* was not a predicate in the ordinary simple sense of assertion. The *agora* was the public assembly or place of assembly. The verb *agoreuo* means to deliver a public speech, and *kategoreuo* meant to make public proclamation, usually of formal charges or accusations. The categories for Aristotle were not mere predicates, but over-all class distinctions or "universals" under which other predicates might be subsumed.

E. M. Edghill, under the editorship of W. D. Ross, translates from Chapter IV of Aristotle's *Categories*[9] as follows:

> Expressions which are in no way composite signify substance, quantity, quality, relation, place, time, position, state, action, or affection. To sketch my meaning roughly, examples of substance are 'man' or 'the horse', of quantity, such terms as 'two cubits long' or 'three cubits long', of quality, such attributes as 'white', 'grammatical'. 'Double', 'half', 'greater', fall under the category of relation; 'in the market place', 'in the Lyceum', under that of place: 'yesterday', 'last year', under that of time. 'Lying', 'sitting', are terms indicating position; 'shod', 'armed', state; 'to lance', 'to cauterise', action; 'to be lanced', 'to be cauterized', affection.

Cooke[10] translates the same passage as follows:

> Each uncombined word or expression means one of the following things:—what (or Substance), how large (that is, Quantity), what sort of thing (that is, Quality), related to what (or Relation), where (that is, Place), when (or Time), in what attitude (Posture, Position), how circumstanced (State or Condition), how active, what doing (or Action), how passive, what suffering (Affection). Examples,

> to speak but in outline, of Substance are 'man' and 'a horse,' of Quantity 'two cubits long', 'three cubits in length' and the like, of Quality 'white' and 'grammatical.' Terms such as 'half,' 'double,' 'greater' are held to denote a Relation. 'In the market-place,' 'in the Lyceum' and similar phrases mean Place, while Time is intended by phrases like 'yesterday,' 'last year' and so on. 'Is lying' or 'sitting' means Posture, 'is shod' or 'is armed' means a State. 'Cuts' or 'burns,' again indicates Action, 'is cut' or 'is burnt' an Affection.

The writer would suggest that instead of "Expressions which are in no way composite," or "Each uncombined word or expression," the Greek phrase *ton kata medemian symploken legomenon 'ekaston*, means "each of the expressions *governed by no copula*." Aristotle explains precisely this meaning in his following paragraph:

> On the one hand each of these [terms] mentioned, itself, by itself, speaks with no assertion; but on the other hand by the copulation of these [terms] to one another, an assertion, or a denial comes to pass. Every possible assertion or denial seems certainly to be either true or false; but none of the expressions governed by no copula is either true or false,—for example "man," "white," "runs," "conquers." (My translation)

It must be remembered that our habit of segregating the copulative element of a verb, in logic, interpreting "Mr. Brown makes shoes," as "Mr. Brown *is* a shoemaker," (See definition of "copula" in Webster) was unknown in classical Greek philosophy.[11] The copulative and assertive elements of even the verb "to be" were confused. Nevertheless, it is suggested that the word *sumploke* calls for the English word "copula." The last above translation is my own.

Now the actual words Aristotle uses for his *Categories* are as follows:

> *ousia,* translated "substance," but much better translated "essence," defined as *to ti en einai,* "what it was to be [anything]" in *Metaphysics* IV (Loeb V) 8, 4 and elsewhere. (See Liddell and Scott, *Lexicon*). *Upostasis* is the literal equivalent of "substance."

poson, translated "quantity," literally, "of a certain amount," an indefinite adjective.

poion, translated "quality," literally, "of a certain kind," another indefinite adjective.

pros ti, translated "relation," literally, "toward, or with relation to, a certain thing," a common preposition with the indefinite pronoun.

pou, translated "place," literally "where," an interrogative adverb. One wonders whether the word should not be accented as an enclitic and construed as an indefinite adverb, meaning "somewhere." Yet in Chapter IX of the *Categories* it is *poû,* and Archimedes' demand for *poû stô,* "somewhere I may stand," is commonly accented as an interrogative, rather than an indefinite adverb.[12]

pote, translated "time," literally "sometime," an indefinite adverb.

keisthai, translated "posture," or "position," literally "to be situated," an infinitive (deponent).

echein, translated "state" or "condition," literally "to have," an infinitive.

poiein, translated "action," literally "to do," an infinitive.

paschein, translated "affection," literally "to undergo," an infinitive.

Time and Space, Kant

Tennant follows Kant in distinguishing time and space as forms of intuition rather than categories of the understanding, but he holds that Kant was in error in regarding these forms as pure and *a priori,* and, as he interprets Kant, "activities original to the subject and brought by it to the manifold of sense." Tennant, on the contrary, holds that space is "not a pure and immediate intuition, but a concept reached gradually and discursively from sensa, by means of synthesis, abstraction and idealization (p. 167). Neither time nor space is a logical relation as such. Duration, succession, and simultaneity are three modes in which time is perceived.

Tennant presents a five-point table of comparisons between perceptual time and conceptual time. (p. 170) Conceptual time is reached partly by abstraction and partly by idealization. It is held that there is in perceptual time "no regular rate: such approximation to unformity as subsists, is imposed by our *tempo,* pulse, stride, etc." But in conceptual time there is "absolute uniformity or evenness of flow."

In the introduction to Part I of *The Transcendental Aesthetic,* Kant states that the elements in a phenomenon which correspond to sensations, he calls the "matter" of the phenomenon, but "*. . . dasjenige aber, welches macht, dass das Mannigfaltige der Erscheinung in gewissen Verhaltnissen geordnet werden kann, nenne ich die Form der Erscheinung.*" ". . . . but that element which causes that the manifold of the phenomenon can be arranged in known orders, I call the form of the phenomenon." He argues that since the form, as thus defined, cannot be derived from sensation, since it is the ordering of sensation, form is not, like matter, given *a posteriori* but " . . . *die Form derselben aber muss zu ihnen insgesamt im Gemüthe a priori bereit liegen, und daher abgesondert von aller Empfindung können betrachtet werden.*" "The Form itself bodily, must, *a priori,* lie ready for the sensations, in the mind or soul, and therefore, can be considered as separate from all sensation."

Kant proposes, in the last paragraph of this introductory section, to get at pure intuition by the process of first isolating all that the mind has attached to sensation " . . . *also werden wir zuerst die Sinnlichkeit isoliren, dadurch, dass wir alles absondern, was der Verstand durch seine Begriffe dabei denkt, . . .*" thus leaving only empirical intuition, ". . . . *damit nichts als empirische Anschauung übrig bleibe.*" Secondly, he proposes to remove from the remaining empirical intuition everything which comes from sensation. "*Zweitens werden wir von dieser noch alles, was zur Empfindung gehört, abtrennen, . . .*" Thus nothing but pure intuition and the simple form of phenomena remain. ". . . *damit nichts als reine Anschauung und die blosse Form der Erscheinungen übrig bleibe, welches das einzige ist, das die Sinnlichkeit a priori liefern kann.*"

From this process he thinks it will be found that there are two and only two forms of pure intuition given as *a priori* principles of knowledge.

Tennant agrees that the higher intellectual elements may be separated off from time and space, but his genetic theory of knowledge, his emphasis on the *ordo cognoscendi,* forbids him to admit that time and space may be separated from sensational perception.

The question may be raised at this point whether Tennant is right in thinking that any of the forms or categories can properly be separated from either the simplest levels of perception or the higher levels of the understanding. On the one hand, tiny children not only act as though time and space were forms of perception, but long before they can count, or measure, they give vigorous reaction to number and quantity, cause and effect, substance and quality. All these categories are inevitably involved in the reactions of the child to his environment, in getting on in his way in the world.

On the other hand, it may be suggested contrary to Tennant that time and space can no more be separated from the higher levels of the understanding than can any of the other categories. One clear evidence that the understanding must be involved in the concepts of time and space, is the vast confusion which exists in the definitions of these terms in the literature of philosophy, physics, and mathematics. If these were pure intuitions of the mind or soul (*Gemüt*) such as, for example, the perception of yellow, we should expect a much greater degree of unanimity. In the perception of yellow we have two elements, (1) the physical properties which may be analyzed in terms of light wave lengths, and (2) the sensation which human beings of normal eyesight call yellow. We may be assured that the latter element is brought to the situation by the mind or consciousness, because of the fact that there are a few color blind individuals who cannot see yellow, though they may have full intellectual grasp of the former, the physical element in color. We may regard the latter element as intuitional rather than related to the higher reaches of the understanding, partly because of the high degree of unanimity of definition and absence of argument over definition among those who perceive yellow.

Time and Space, Confusion of Definitions

Just the opposite situation obtains in the definition of time and space. It is true that Aristotle dismisses time and space with little comment. In Chapter IX of the *Categories* he says, "Of the rest, the matter of sometime and the matter of somewhere [time and space] . . . because these things are very plain, nothing else is to be said concerning them than was said in the beginning . . ." Now "in the beginning" of this discussion (*Categories,* Chapter IV) Aristotle had simply explained "somewhere is whatever is in the Lyceum, in the market; sometime, whatever is yesterday, or last year." Aristotle is far more interested in substance (better translated "essence") than in any of his other categories. Time and space receive the least attention of all.

It seems to have been Hebrew and Hellenistic[13] sources rather than Greek philosophical concepts which made Augustine conscious of the problem of time. The Hebrew cosmogony, the idea of an absolute beginning of the universe as a created thing, as in Genesis 1:1, "In the beginning God created the heavens and the earth," and in Psalm 90:2, "Before the mountains were brought forth, or ever thou hadst formed the earth and the world, even from everlasting to everlasting thou art God," was bound to give rise to reflective discussion of time as such. The same is true of such New Testament passages as (John 1:1) "In the beginning was the Logos, or Reason," and . . . (Hebrews 11:3) " . . . the visible has not come from the phenomenal." (Literal translation)

It is true that Augustine's discussion of time in Book XI, Chapters V, VI and VII of *The City of God* bears some striking resemblances to Plato's discussion of the creation of time in *The Timaeus.* James Orr[14] with reference to *De Civitate Dei,* Book XI, Chapter VI, puts the matter too strongly when he says, "Augustine, however, in these remarks does little more than reproduce Plato in *The Timaeus.*" Augustine's entire thought and discussion as regards time are distinctly Hebraistic, and not Platonistic. Augustine contemplates an absolute beginning of motion as the beginning of time. For Plato, however, cosmogony is manufacture, not creation. There is no such thought in Plato as the absolute beginning of motion. Plato's time is the *measured* time of the revolving heavenly bodies, which would correspond to Augustine's conception of the "fourth day of creation."

For Plato in *The Timaeus* space is the unchanging matrix in which the world and its contents were manufactured. Plato seems hardly conscious of any *problem* in regard to either time or space. For Augustine, on the other hand, there is a keen consciousness of the problem of a world created in infinite space, just as of the problem of a world created in eternity.

Whether or not the above analysis of the relationship between Augustine and his predecessor is correct, the fact is that since Augustine the concepts of time and space have been the subject of constant and confused discussion in philosophical literature.

Our modern debate over time and space, as related to the mathematics of relativity, seems to have little to do with the Hebrew doctrine of an absolute beginning of a created universe. Rather it seems to have arisen in the mechanical problems of measuring complicated sequences. Bridgman[15] quotes as follows from "the Scholium in Book I of the *Principia* [Newton's]"

> I do not define Time, Space, Place or Motion, as being well known to all. Only I must observe that the vulgar conceive those quantities under no other notions but from the relation they bear to sensible objects. And thence arise certain prejudices, for the removing of which, it will be convenient to distinguish them into Absolute and Relative, True and Apparent, Mathematical and Common.
>
> (1) Absolute, True, and Mathematical Time, of itself, and from its own nature flows equably without regard to anything external, and by another name is called Duration.

On this quotation from Newton, Bridgman comments, "Now there is no assurance whatever that there exists in nature anything with properties like those assumed in the definition . . ."

It is clear from Tennant's characterization of conceptual time quoted above, "absolute uniformity or evenness of flow," (p. 170) that Tennant is still affected by the Newtonian (and ancient) concept of time as a flow of something. Tennant, however, does revolt against Newton in throwing off "the gratuitous assumption that a frame, *common to* all possible observers . . . belongs to the world *per se* . . ." He says, "No conceptual time, space or space-time is more Real, or even more true, than another; all are descriptive apparatus, differing only in range of applicability and degree of economicalness."[16]

It should be suggested at this point, contrary to Tennant, that a simpler and more precise definition of time and space would eliminate some of the problems which have arisen because of vagueness of definition. The following definitions would be conducive to clarity.

Time is the mere empty possibility of relationship in sequence; the mere empty possibility of the adjectival or adverbial relationships, "before" and "after."

Space is the mere empty possibility of relationship in dimension; the mere empty possibility of the adjectival or adverbial relationships, "here" and "there."

According to these definitions, the question of the infinite divisibility of space, which agitated Samuel Clarke and Newton, is irrelevant. There is nothing left to divide. Things in space are divisible, but whether infinitely divisible or not, is a question for investigation by physical experimentation.

Similarly time does not flow; there is nothing there to flow. Things in time may flow in a vastly complex flux, any particular stream of which may be arbitrarily taken as a measure for any other stream or streams.

It is as absurd to speak of time, as such, as flowing, as it would be to speak of the multiplication tables as multiplying. In fact, the category of number might well be defined as *the mere empty possibility of the manipulation of identities,* the choice of these identities being just as arbitrary as the selection of the revolutions of the earth on its axis as measures of time units. The proposition two plus two equals four is not one whit more definitely within the categories of the understanding than the proposition that existence may take place in before, after, here, there, relationships.

It seems reasonable, therefore, to criticize Tennant and Kant for distinguishing time and space from the categories of the understanding, just as it seems reasonable to justify Tennant in criticizing Kant for separating time and space, in their genesis at least, from sensory experiences.

Since Tennant in discussing the categories of the understanding follows the Kantian outline, it will be convenient to have at hand a summary of Kant's divisions of the subject. The following is from his section on "Transcendental Logic."[17]

TABLE OF CATEGORIES

I. *Of Quantity*
    1. Unity.
    2. Plurality.
    3. Totality.

II. *Of Quality*
    4. Reality.
    5. Negation.
    6. Limitation.

III. *Of Relation*
    7. Of Inherence and Subsistence
        (substantia et accidens).
    8. Of Causality and Dependence
        (cause and effect).
    9. Of Community (reciprocity
        between the agent and the
        patient).

IV. *Of Modality*
    10. Possibility.
        —Impossibility.
    11. Existence.
        —Non-existence.
    12. Necessity.
        —Contingency.

"Categories of the Understanding"

Tennant divides the categories of the understanding into two main classes (1) the formal and (2) the real, or those which Kant calls the "dynamical." The formal categories Tennant subdivides into (a) the mathematical and (b) the logical.

Tennant discusses the mathematical categories, unity and plurality very briefly, and argues that since even the lower animals react to plurality when it cannot be thought that they have any sense of counting, therefore ". . . the mathematical categories are derived (by the mind) originally from the sense-given, not out of 'the mind itself' or from latent subjective faculty alone." (p. 172)

The logical formal categories as distinguished from the mathematical, are derived by "reflective comparison." Tennant defines "logical" in this connection as "reasoning, in the sense of ratiocination issuing in certainty." (p. 172) All twelve of Kant's subcategories listed in the outline above may be regarded as logical. In addition there are "many . . . other concepts than Kant's dozen [which] have since received this name . . ." (p. 172)

Among the more important logical categories aside from those of Kant, Tennant lists qualitative likeness and difference, and numerical identity and diversity. Tennant suggests that discrimination between qualitative likeness and difference, and numerical identity and diversity, would have avoided the Trinitarian controversies in the fourth and fifth centuries and in the seventeenth and eighteenth centuries. Tennant is historically mistaken here. Nowhere in his books does he exhibit an adequate understanding of the philosophical problems involved in the Athanasian and Arian views. It would be correct, however, to say that clarity of distinctions in these categories would avoid some of the vagaries of mysticism, especially those expressions so frequently found in the writings of the mystics, referring to "unity with the divine."

Numerical identity is not the same as the mathematical category of singularity. Tennant's position here may be illustrated by the fact that "the driver of this truck" is a singular term, though the truck may change drivers. On the other hand "this truck" is a term of numerical identity, even though the truck may undergo many changes in its progress toward obsolescence.

Both terms are logical (or mathematical) devices, only approximately applicable to ontological entities, and somewhat arbitrarily applied thereto. The degrees of applicability of these categories to ontological entities involve a discussion of "a substance or continuant" (p. 173) and will be considered under the heading "Substance."

In summarizing the discussion of the formal categories, before taking up the "real" categories, it may be remarked that (1) Tennant does not seem to have made good his particular kind of distinction between the mathematical and the logical categories. Of course they are not the same in all respects, but both classifications are related to the sense-given, and that equally. Both classes of categories are "derived by reflective comparison," the mathematical fully as much as the logical.

(2) Tennant concludes that "the formal categories, the more important of which have now been mentioned, like sense judgments, give intuitive certainty, and, unlike sense judgments, even universality. But neither yield universal and necessary knowledge as to common matter of fact: nor do both together." (p. 173 f.)

The opinions expressed in this quotation must be challenged on several counts. (1) Does sense judgment give intuitive certainty? (2) Do the formal categories give intuitive certainty? (3) Do they give universality, or, as Tennant said above, "ratiocination issuing in certainty?" (See p. 78, lines 12, 13.)

Contrary to Tennant, it may be argued that certainty[18] cannot be predicated within the formal categories in the strictly logical sense, but that degrees of probability apply in all realms of thought, whether mathematical, logical or ontological.

The "Real" Categories

Tennant prefaces his discussion of the so-called "real" categories with a somewhat complicated emphasis upon their anthropic origin and, at the same time, their validity for and in objective relations. These categories are a warrant for our

> . . . attribution of thinghood, permanence, substantiality, efficiency and interaction . . . to the not-self . . . If by

> 'categories' we mean concepts, rather than functionings of the synthesizing subject, the 'real' categories are neither purely read off nor purely read in; they are established by postulation that is subjectively derived but objectively evoked, and are principles of *inter*pretation.[19]

There are, in other words, two sides to the emergence of these real categories, suitable objective material on the one hand, and "subjecthood and *erleben*," on the other hand.

Tennant holds that

> The notion of a substance in the sense of an abiding unity, is, doubtless, derived from knowledge of the self. It is knowledge of self, and of other selves, that encouraged the venture involved in believing things to continue a life-history when not being 'perceived'.[20]

This opinion seems extremely doubtful. It lies within the field of psychology rather than epistemology. If the genesis of the idea of substance is from our experience of *Erlebnis,* it would seem more likely that it comes from observation of things, *over against* the continuing self, the experience of "There it is again." Tennant's thought that "to conceive of things is to personify," seems far fetched.

Tennant defines substance as "a ground or sufficient reason,"[21] "the *ground* of the conjunction of particulars . . . the determinedness, as to order, of our sensa, . . ."[22] But when it comes to describing this substance as matter or "stuff"[23] Tennant rejects the notion with rather emotional disdain. The idea of substance as a kind of material stuff is an idea which "philosophy, on becoming critical and clamorous for the clear and distinct, convicted of being a confused, ignorance-cloaking and superfluous notion . . . Substance, as unknowable substratum, can well be spared."

The word "unknowable" is unreasonably dragged in, a gratuitous burden heaped upon the materialist or dualist. Tennant has plenty of room in his philosophy for the knowledge of existing entities by inference from the observation of their attributes and activities, as material stuff is held to be known. It is truly unfair for Tennant to refer to the material stuff concept of ontological substance as "unknowable." It is, however, the only unfair word which Tennant uses in his rejection of the substance of material stuff. Tennant is not an idealist. He insists upon the necessity for the "concept of substance" which he describes as "quite other" than the material stuff of substance.

It is, doubtless, clear to all that the category of substance is so strongly ontological in its suggestion that it is difficult to separate the epistemological aspects of it. It seems to the writer that Tennant has clung to the epistemological category of substance and thus has avoided epistemological monistic idealism, but he is unconscious of the fact that his *concept* of substance can only be expressed in language which has strong material ontological reference. The word "ground" is used repeatedly, while the word "stuff" is avoided as with a shudder!

Aristotle on Matter or Stuff[24]

Aristotle defines matter, *'ule,* as to *'upokeimenon geneseos kai phthoras dektikon* "the underlying thing capable of receiving generation and corruption." (*Concerning Generation and Corruption,* I, 4, 7 Quoted by Liddell & Scott.) In his *Metaphysics* (VI (Loeb VII), VII, 2,) he says, *to de ex 'ou gignetai 'en legomen 'ulen,* "that out of which [anything] is generated, which we call matter . . ." In Paragraph 4 of Chapter X of the same book of the *Metaphysics,* Aristotle says,

> If then there is for one thing matter, and for another thing form, and for another thing, that which is out of these; and if essence is both matter and form and that which is out of these, there is on the one hand a sense in which matter is said to be a part of something, but there is another sense in which it is not . . .

Aristotle goes on to explain that matter is the stuff which is capable of receiving form.

In Book VII of the *Metaphysics* (Loeb VIII) Chapter I, Paragraph 6, Aristotle says, *'ai d' aisthetai ousiai passai 'ulen echousin,* "all the essences, objects of sensation, have matter."

Aristotle on Substance

The word which I believe most truly represents "substance" in Aristotle, is *'upostasis*. It has the advantage of exactly the same etymological meaning as the Latin derivative, "substance," "that which stands underneath," (as *ousia* from the verb "to be" has the same etymological meaning as the Latin derivative "essence"). Liddell and Scott (*Greek Lexicon* cite the following from Aristotle's *De Munde,* 4, 21: *ton en aeri phantasmaton ta men esti kat' emphasin, ta de kath' 'upostasin.* "Of the phantasms in the air, some are according to appearance, and some are according to substance."

The definition of this word in Liddell and Scott continues, " . . . the real nature of a thing, as underlying and supporting its outward form and properties, . . . Latin *substantia* . . ."

Tennant's Dualism

Tennant's dualism is "faint-hearted and short-winded," (Santayana's description of Dewey's naturalism), or "broken-backed," (Dewey on Santayana. Thanks to both gentlemen for the sharp weapons!) Tennant is an epistemological dualist in his strong adherence to the category of substance. However, his dualism seems to the writer to fall short of workable fruitfulness in that he does not believe that "substance" as related to moving things designates a kind of space-occupying stuff.

As in the discussion of Tennant's psychology, so here in his epistemology, it is suggested that there seem to be concepts of two different kinds of interacting substances, (1) thinking things and (2) moving things, the latter being space-occupying entities or stuff. As indicated above, the present subject is epistemology and is, therefore, confined to the *concept* of substance. The ontological question whether there are substances corresponding to the categories thinking things and moving things, is not now properly under consideration.

The second real category which Tennant presents, the second member of Kant's third triad, "relation," is causality, which is, Tennant thinks, inevitably involved in the category of substance. A part of Tennant's answer to Hume on the problem of causality has already been given.[25] Tennant holds that the idea of causality arises in anthropic experience, which involves both efficiency and necessitation, and he holds that

> As reasonable men we cannot dispense with the causal category as thus expressing determination of one event by another, whatever we may do as rational logicians. Our 'real' categories . . . are means to . . . *savoir faire* . . . so as to live on terms with [the world].[26]

Tennant distinguishes the category of causality in the sense of efficiency and necessitation from the popular scientific notion of determination without efficiency or compulsion (necessitation). He argues that "logistic philosophy" or logical positivism "shelves" causality and

> changes the topic of conversation to that of temporal sequence, deterministic systems, or anything but the aspect of the facts with which the causal category is an honest attempt to cope.[27]

Rationalism, he holds, identifies *causa* with *ratio,* effectuation with logical implication. But, says Tennant,

> . . . interactions between Actualities are not identical with logical relations between forms of propositions; and there is no implication between happenings.[28]

Tennant concludes his discussion of the forms and categories, which is not, and, he says need not be, exhaustive, with certain summary statements as follows:

(1) The forms or categories are *not* primarily *acts* of thinking but instruments for thought.[29]

(2) The forms and categories are not derived from the mind prior to experience, but from the mind in *rapport* with objects.

(3) [Tennant does not at this point review his distinction

between the forms and the categories, a distinction which, in the writer's opinion, cannot be effectively maintained, but which should logically be included here in his summary.]

(4) The formal categories, mathematical and logical, are 'read off' with immediacy and necessity.

(5) The 'real' categories are 'read in' and are of the nature of suppositions.

Maintaining the distinction between numbers (4) and (5) above, Tennant says

> Postulation underlies what is wont to be called axiomatic in deductive and inductive logic; and anthropic assimilativeness is involved in the very conception of an ordered world of interacting and mutually determining things in space and time.[30]

Contrary to Tennant, it may well be argued that both the formal and the real categories are postulations; both are anthropic assimilations; neither class gives necessity nor certainty in the "Objective" sense; both classes are productive of degrees of probability.[31]

Thought and Reason

After the discussion of the categories, Tennant proceeds to distinguish thought as the thinking process, from reason. Thought is mere

> thinking about Actuality such as is conceptually constructed out of the impressional by the forms and categories; and is something quite other than manipulation of the product of thought by syllogistic or other logical methods of ratiocination.[32]

The thinking process is held to be largely experimental.[33] It is not merely descriptive. Though discursive, it is mainly alogical. After the goal is reached, then the associative procedure, which is like the working of a detective, is given up for logical analysis. An important element in the thinking process is "The elimination of the irrelevant *ad hoc* . . . Ceasing to attend to the irrelevant or non-interesting, is one aspect of selective pursuit of the salient, the suggestive, the significant."[34]

Thinking involves "shrewd guessing," recognition of analogies and similarities. It is a kind of *verstehen* which is difficult to *begreifen*. Tennant does not use the word perspicacity, but this word would exactly suit his purpose.

The process of thinking which Tennant is here describing is identical with what Peirce has called "abduction." In his article on "Reasoning" in Baldwin's dictionary, he distinguishes "presumption, or, more precisely, abduction" as that process which furnishes the reasoner with the problematic theory which he then proceeds to verify by processes of induction.

Peirce believed that Aristotle in Book II, Chapter XXV, of the *Prior Analytics,* used the word *apagoge* as a name for the type of reasoning in question. The word literally signifies a more or less violent or abrupt abduction, apprehension, or leading away. In current philosophical discussion the method of reasoning in question is sometimes called the method of hypothesis. It is by some distinguished from induction, and by others included therein. For example, at the meeting of the American Philosophical Association in New York, Tuesday, December 30, 1947, Professor W. T. Stace of Princeton in his remarks defending his paper on "Metaphysics and Existence", included the method of hypothesis as a part of induction. Professor Otis Lee in his criticism, referred to the method of hypothesis as a method other than induction, Peirce's usage. Tennant in general follows the usage exemplified by Professor Stace.

> Thinking is more than perception of formal agreement, etc., between ideas; it is intentional and teleological as well as intuitively cognitive.[35]

In his discussion of the topic "Reason" Tennant criticizes further the Kantian distinction between understanding and reason.[36] He concludes

> The only breach within the whole of the process that issues in human knowledge, is that between formal and 'real' categories, between where we 'read off' and where we 'read in',

between the logical and the alogical in reason and thought.[37] As indicated above, it may be questioned whether there is any such breach. It may be argued that the only distinction between the formal and the real categories is the distinction between the things to which they refer, and there is just as much a distinction between the category of substance and the category of causality as there is between the category of number and the category of substance, the process in all the categories being one of *rapport* between the mind *and its non-self.*

The most fruitful element in this section on "reason" is the distinction between the rational and the reasonable. Tennant says

> The latter [the reasonable] is associated largely with the teleological and the alogical, with the principle of sufficient reason, with induction and 'probable' belief, with satisfaction of conation; the former [the rational] solely with coercive and deductive logic, with the principle of contradiction, with the requirements of pure cognition.[38]

It might be empirically argued, contrary to Tennant, that the rationally "coercive"[39] is a fallacious conception, *ein Unding.* Nothing but probability, though it be in the highest degree, can rationally be ascribed to the elementary axioms of arithmetic and logic, to say nothing of the processes of manipulation by which these sciences proceed.

Theories of Knowledge, Rationalism

Tennant's discussion of rationalism in the chapter entitled "Rationalism and Empiricism"[40] is worthy[41] of the most careful attention. It will be given only brief treatment in this thesis for the reason that rationalism is thoroughly rejected by Tennant and does not contribute any essential element to his empirical philosophy.

Briefly, the essence of rationalism is defined as that which regards reason as a kind of system of independently existing entities, and which regards this system of rational entities as governing and causing objective existence as known to the mind. According to rationalism *"ratio est causa."*[42]

Tennant points out that it was Leibnitz who introduced into logic the so-called "law of sufficient reason," as coordinate with the logical laws of identity, contrariety, and excluded middle.[43]

With reference to the table of categories given in Appendix B, it is suggested that rationalism places the laws of logic in the second group of categories, "ontological entities," rather than in the first, "abstract possibilities of relationship." Rationalism confuses possibilities with existing real actualities. This suggestion, like the table of categories referred to, is not Tennant's but seems a logical unfolding of his position.

Tennant denies that there is any innate "faculty" of reason as such. Were there no sensation, it would be difficult to imagine a rationally functioning mind. Sense is the occasion of reason.

Tennant denies the necessary applicability of "necessary truths" to ontological entities. His position is expressed in the words "even if these laws, as intuitive inductions, are formally certified, they are not premises for metaphysic, but principles of reason*ing*."[44]

As indicated above in the discussion of Tennant's theory of the categories, he holds that "necessary truths" are binding for all reasoning, in such sense that abstract mathematical and logical propositions may be known with "coercive" certainty. It may be suggested, however, that by "the faith of the logician," as Peirce has said, the laws of identity, contrariety and excluded middle probably are really binding upon all useful (valid in the etymological sense of the word) thinking. Tennant fails to make it clear that this highest degree of cognitive probability amounts to a certainty in the "objective" sense.[45]

Tennant convincingly shows that the abstract laws of formal logic are *discovered*. He fails to prove, however, that they are intuitively discovered, in the usual sense of intuition, immediate untaught knowledge. Tennant would be more consistent if he held that they are discovered by a process of reasonable inference.

In discussing Dewey's epistemology, it will be made clear that Dewey opposes Tennant in holding that the laws of logic are not *discovered* but *manufactured* in the process of inquiry.

Theories of Knowledge, Empiricism

Tennant is an empiricist. His brief discussion of empiricism at the end of his chapter devoted primarily to rationalism is not his main work on the subject. Rather his entire *magnum opus* should be considered as such. In this section[46] he advances his main argument (1) by rejecting sensationalism as an unworthy form of empiricism.

> In that, as an accident of history, empiricism has been associated with sensationalism, it would seem that a fine name has been degraded to a low usage.[47]

(2) By emphasizing the empiricism of the *ordo cognoscendi.*

Theories of Knowledge, Realism, Idealism, Phenomenalism

Tennant's evident purpose (Chap. IX, X) is, having disposed of rationalism and sensationalistic empiricism, to present what he calls phenomenalism in comparison with both realism and idealism. He seeks to eliminate what he considers the weakness of both, while retaining in his "phenomenalism" what he considers their strong points.

Tennant is truly dealing with epistemology in this chapter, but there are strong admixtures of ontology in the various sections. This mixture of ontology and epistemology is not surprising when Tennant's genetic psychological approach is considered. He says

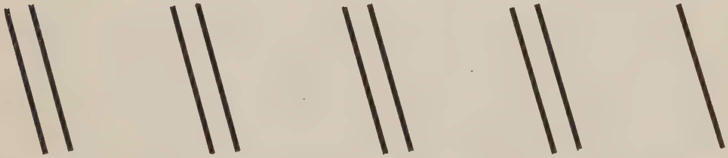
> . . . though epistemology is not identical or coextensive with ontology, it is the sole approach thereto; . . . no theory about the nature of ultimate Reality, or what exists independently of the knowledge-process of knowers, can be other than unverifiable speculation, unless it be grounded on results of inquiry as to what the knowing process is, and what status is held by the respective kinds of 'objects' that are over against the knowers, at the various levels of experience-organisation.[48]

Tennant indicates that the epistemological theories discussed in his chapter on rationalism and empiricism involve a direct investigation of the knowledge process itself. The theories discussed in the chapter now under consideration, realism, idealism and phenomenalism, approach epistemology through

> . . . predominant interest . . . as to what it is that knowledge knows, the object known; its dependence on, or independence of, the knowing of knowers; and as to whether or not, or to what extent, knowing constitutes, or makes difference to, that which is known.[49]

Tennant believes that the chief source of confusion in epistemology and ontology is failure to distinguish between the various types of objects. Again he introduces his own special distinction, (o) representing the sensory object of individual experience, (O) representing the "conceptual 'thing'" of social Experience, and *omega* representing the ontological Reality behind both individual and social experience.

This threefold distinction of the word object is obvious enough once it is called to the reader's attention. Generally speaking Tennant splits the hairs quite fine enough! He even points out that there is a difference between "a blue-sensatio" (meaning a sensation in which the blueness is ascribed to the o object) and "a blue sensatio" (a sensation in which the blueness may be merely in the sensory process). The distinction, however, is made a page too late. On page 220 in his note on Ward's discussion of the process of examining a flower, he argues that the o object is *changed* by the knowing process. On the following page, however, he flatly states that such change is impossible. The discrepancy and confusion may be illustrated by the following diagram.[50]



As the ordinary observer looks at the oblique lines in the diagram, he is inclined to say, "I see four pairs of lines with an odd line at the right." He interprets the lines which are close together as "pairs", or as "belonging together."

Now let the reader form a mental concept of a series of wide boards leaning against a railing,—wide boards with narrow cracks between them. Now the observer says to himself, "I see four pairs of lines, with an odd line to the left." With the changed concept, the "pairs" characterized by "belonging together" are the lines spaced wide apart.

The question is, does the o object, the individual sensum, consist of the lines as belonging in pairs, which involves an element of unconscious interpretation, or does the sensum consist merely in the visual image of the lines on the page? If Tennant had given more heed to *Gestalt* psychology, his confusion as to the changeableness or unchangeableness of the o object would have been eliminated. Under ordinary circumstances the observer does not say to himself, "I see nine oblique lines spaced at different intervals." He says, "I see four pairs of lines with an odd line to the right [or left]." In other words, individual psychology does not truly begin with an unchangeable sensum, but with a *Gestalt* which is changeable as attention progresses.

Regardless of the relationship between the o object and the knowing process, Tennant states with cogent clarity the question as to whether the *omega* Object is or is not modified by the process of knowing. This question systems of ontological and epistemological dualism answer in the negative, while monistic systems generally answer it in the affirmative. According to realistic dualism an o object is experienced when an S subject is in *rapport* with an *omega* Object. This is also Tennant's view, but Tennant's peculiar definition of realism comes into view at this point. He declares

> Realism assumes o and *omega* to be identical, and, lodging all quality in o, makes *p* [perception] comparable to exact colour-photography. Phenomenalism, on the other hand, takes *p* to be comparable to vision through irremovable and undetectable coloured spectacles; so that o is an appearance of *omega,* and *omega* has a nature about which we can speculate but cannot know.[51]

One system of realism could be named of which Tennant's assertion is true,[52] namely, the peculiar monistic critical realism of the group to which D. C. Macintosh belongs.[53] For Macintosh the sensum and the *omega* Object must be identical, else Macintosh could no longer be a monist! As indicated above, for him, seeing the object is the same as getting it in his eye. Tennant's statement is probably untrue for all realisms except critical realism. Certainly for dualistic realism, the sensum is *not* the *omega* Object, but only data by which the *omega* Object is *inferred*.

John Dewey in his definition of "Realism" in Baldwin's *Dictionary*[54] defines modern realism in the following sentence:

> In the more modern and epistemological-metaphysical theory, it is the doctrine that reality exists apart from its presentation to, or conception by, consciousness; or that if, as matter of fact, it has no separate existence to the divine consciousness, it is not in virtue of anything appertaining to consciousness as such.

This was written before the rise of Neo-Realism and Critical Realism. It accurately defines the dualistic realism, which distinctly denies o and *omega* to be identical.

Immediately after Tennant's description of realism quoted above, he gives the following words:

> The third theory forthcoming, subjective idealism, cancels *omega* as superfluous; and maintains that o, like a feeling, is a mode or state of S. Of this view, Berkeley is usually regarded as the typical exponent. He certainly does sometimes appear to abolish the distinction between sensum and sensatio, and generally to imply that sensa are what we should call subjective modifications.[55]

Tennant modifies this statement almost sufficiently to satisfy the modern objective idealist of the personalistic school. He says of sensa that they are not created by their individual subjects, nor do they "well up uncaused. If their *esse* is *percipi,* it is also *a Deo causari.*" He adds, " . . . no philosopher has worked out a coherent system of subjective idealism; certainly not Berkeley."[56]

Tennant continues this criticism of idealism with the argument that since Berkeley, in order to avoid solipsism, had to postulate other selves whose *esse* is not *percipi* (passive infinitive, "to be perceived") but *percipere* (active infinite, "to perceive"), he should have gone on and assigned selves to dogs as well as men, and so to all "the furniture of earth." Thus everything is made "Real" again, and idealism surrenders back to realism.

Tennant says

> The question 'are sensa mental?' is not to be confounded with the question whether they are appearances of spirit . . . or of non-spirit . . . The question, in short, is whether the sun, or the concept of it, is constructed by minds.[57]

But this is not exactly what the idealists of the Borden P. Bowne tradition (the personalists) have done. Tennant does not seem to know of Bowne's personalism, and Brightman's chief works are more recent than Tennant's active period. Brightman is an avowed epistemological dualist but not a dualist in ontology.[58] Bowne might harbor a kind of epistemological monism under his doctrine of *degrees of reality* (a doctrine which seems a stark contradiction to an ontological dualist). It is difficult to determine whether the all inclusive Mind, or God, of Bowne is regarded as a substantive entity or not. Bowne fervidly ascribes reality to it, but a reading of all Bowne's books in philosophy, and of Brightman's major works, leaves the writer with the impression that Mind is nothing but minding, as Lewis Carroll would say, a grin without a Cheshire cat.[59]

In Tennant's terminology (although he fails to take cognizance of the personalistic movement), personalism may be described as subjective idealism, if the writer's understanding of it is correct. It has its O Object as well as its o object. The O and the o are both presentations of S Spirit or s spirit to S Subjects or to the s subject; but the Spirit or spirit as well as the Subjects or subject, are all nothing but *cogitans* without any *res*. The *omega* Object is denied. Such a view Tennant would reject.

The *omega* Object is an essential in Tennant's philosophy, a feature which he shares with dualistic realism, as opposed to idealism. He rejects the view that the *omega* Object is directly apprehended by the subject or Subjects, i.e., in the sense that the *idion* or percept is numerically identical with the *omega* Object. This view he has (wrongfully) made basic to *his* definition of "realism." He says

> We cannot advance a step from individual and fleeting sense-knowledge to what is generally called knowledge, whether common sense or science, without resort to supposition or belief; however compelling be the motivation, and however successful the venturesomeness, of the supposition. The grounds and causes of belief in the sun of astronomers, are coercive enough. But for all that, the sun is not that contradiction in terms, a common percept; nor an Object whose abiding existence is read off in conception with the maximum of (*ps*) immediate certainty: it is an Object which we have good pragmatic reasons, of a roundabout kind, to *think* existent and continuant, while the *idia* or percepts proper, of which it is a concept, are sporadic and transient.[60]

This position is the position of dualistic realism. As to the opinion that the world *per se* is identical with the world as conceived by theoretical physics, Tennant says, "Such mistakes, indeed are not made by science that knows its own business." One might add, "Nor by dualistic realism."

Realism of another kind, says Tennant, (p. 228) assumes that conceptio is "plate-glass vision[61] of naked reality," (not quite as bad as numerical identity above, but still unfair to most forms of realism). Idealism, says Tennant, "cancels [*omega*], and, asserting the *esse* of the world to be *intellegi,* bestows the name 'Reality' on the conceptual that is concept *of* nothing." Phenomenalism in contrast with both realism and idealism, (as defined), takes conceptio as "symbolic interpretation of the [*omega*] world that assuredly exists independently of our knowledge, but as to whose nature we can, for the most part, only conjecture." In this, Tennant's phenomenalism spells dualistic realism. Anticipating an ontological judgment, Tennant indicates (p. 230 f) that it is the relations of "likeness, order, regularity, etc." in *idia,* which suggest an *omega* Object behind them.

After his presentation of what he calls the "instrumental theory" of realism, Tennant moves on toward a definition of his phenomenalism, making a transition by way of what he calls "causal theory of perception." (P. 232 ff.) This theory implies (1) that sensa are *caused* by O Objects or by *omega* objects, and (2) that they are *conditioned* by the body and its sense organs.[62] This causal realism seems to the writer practically identical with what Tennant calls phenomenalism, in fact he says (p. 240) that it "is already nine-tenths phenomenalism." It accounts for the fact of illusions and for the difference between primary qualities (extension) and secondary qualities (such as color and pitch). But Tennant will not fully admit causal realism into the phenomenalistic fold, because it clings to the *omega* Objective *Dasein* of space-occupying entities,—a space occupying thing in itself causing one's impression of a physical object. This is an ontology to which Tennant does not wish to be committed. Therefore he clings to his quarrel and excludes even causal realism. Dualistic material realism does hold to the *omega* Objectivity of space-occupying entities while Tennant's ontology is inclined toward the spirituality of all *omega* Objects. Tennant even goes so far as to say that it would be "all one for science, if this ultimate primary quality [extension] were . . . but appearance . . . gross matter may as well be an appearance of spirit . . . " (Ibid., pp. 234 f.)

In his battle against realism Tennant several times (e.g., pp. 230, 234) refers to the "incompatibility" of the elliptical *appearance* and the circular *shape* of a coin.[63] How incompatible? It is *analytically necessary,* if the categories either of Euclid or of Lobachewsky be assumed, that a circular flat object will appear elliptical from all points of view but the direct perpendicular. That is merely in the definition of circularity.

Tennant is conscious of the problem of causality in "causal" realism. He rejects the causality of Objects, because these are experienced in and by the socialization of sensa (p. 228 f., p. 236), but he accepts causality as applicable jointly to *omega* Object and subject, the *omega* Object being *"conditio sine qua non* of perception, as an agent cooperant with the subject."

It must be remembered that even Kant spoke of the noumenal as causing the empirical. I think a case could be made out to show that in these instances Kant used "cause" only as a *Grenzen Begriff,* and so was not as inconsistent as he is commonly made out to be. However, Tennant rejects the inscrutability of noumena, regarding *omega* Objects as knowable by inductive inference. He therefore has more right than Kant to regard *omega* Objects as causally related to phenomena for a subject. This is epistemological, not ontological, causality, for Tennant, and I think also for Kant.

Admitting the possible causality between *omega* Object and subject, Tennant proceeds to attack the so-called "causal theory" of realism by an analysis of the function of the bodily organs of sensation. He discusses the effects of drugs, of injuries, and of other so-called "abnormal" causes in producing dreams or hallucinations. It is all rather obvious[64] except that the most obvious fact, brought out in English philosophy by Bishop Butler *two hundred years ago*[65] is overlooked. Butler points out that one sees with his eyes exactly as he sees with his glasses. Either or both may be defective. Both are parts of the o, O, *omega* Objective world. Visual images may be had from the *omega* world without either eyes or glasses as when I bump my head. The body and its sense organs are only a special case under the *omega* Objective category.

Tennant brings up the familiar fact that we cannot tell how a material *omega* Object can cause sensation, and concludes therefore against causal realism. But how *another* spiritual *omega* Object can cause sensation is just as inscrutable as how a material thing can do so. Interaction between material object and consciousness seems to be most familiar. Other persons communicate with audible sounds or with visible signs,—always so (unless one believes in mental telepathy). Surely it is generally so. Tennant, in accepting *omega* Object-subject causality has committed himself to interactionism of some kind. He has no ground to rule out matter-mind interaction while not ruling out mind-mind interaction.

Since Tennant is an interactionist, one need not discuss rigid monistic systems at any length. Indeed action involves relation. How could there be action of any kind which does not include related interaction? And how could there be interaction of any kind without heterogeneity or otherness? How a non-interacting identity could be anything but a perfectly uniform undifferentiated blob,[66] seems to me a logical problem. As Tennant says (p. 255), "To know Reality is not necessarily to become it; indeed, to know, and to be what is known, cannot be the same." Certainly there is no logical contradiction in the concept of causal interaction between spirits, or material objects, or both. This point Tennant grudgingly concedes.

> 'Like only knows like' may be but baseless dogma or antique prejudice; but 'like understands like', or understanding consists in assimilating, is truth that psychology may be said to have established, and that is presupposed in all attempts to deny it. One need not be green, in order to become acquainted with green; but we must be active and relatively permanent, in order to be cognisant of a course of Nature, or to have phenomenal science of an external world. Such knowledge, it has here been contended, could not be forthcoming, even as presumptive, unless there were human souls in commerce with other souls and with other Real beings, whether analogous to souls or not. (Op. cit., p. 248).

To define his type of phenomenalism, Tennant still further develops his system of letter symbols.

S represents the individual subject or soul.

Lower case o represents the objective element in individual consciousness.

Lower case *sigma* represents the same element in epistemology as o. It presents the conception of the objective sensum of the individual subject regarded as a subjective experience.

Uncial *Sigma* represents the collective subjectivity of society.

Capital O represents the object of collective thought.

Phi stands for the same epistemological element as O, but, representing phenomena, it signifies the publicly conceived O object, as a phenomenon *of* the ontologically existing *omega* object.

Omega as heretofore, stands for the ontologically existing Object.

Tennant argues that at least these conceptions are "the minimal number required for adequate statement of the forthcoming facts." (p. 243) We have in experience individul subjects, with individual objective (or subjective) sensa. These individual subjects intercommunicate in a social consciousness which makes constant references to Objects as collectively known. These Objects are regarded as phenomena of ontologically existing entities. The knowledge process is thus *rapport*, between individual and social subjects on the one hand, and ontologically existing Objects on the other, phenomena being the connecting link, interaction, or relationship, between the subjective and objective elements. These statements are represented by the following series of symbols, as defined above:[67]

S, o or *sigma, Sigma,* O or *phi, omega.*

Tennant's Phenomenalism Compared with Other Systems

Tennant's phenomenalism differs from materialism in that he believes in the existence of the subject as an ontological non-material substantive entity, not merely adjectival of, or adverbial to, space-occupying material entities. It differs from the sensationalism of Locke in that Tennant regards the subject as an active participating element in the knowing process, not merely a *tabula rasa.* In this he agrees with Kant.

At the other end of the formula, Tennant disagrees with Kant in that he insists that the *omega* Object is knowable by inference from phenomena.

> The phenomenon is, so to say, the utterance of the ontal *to us;* if the noumenal shines forth, or appears to us, as the phenomenal, it cannot be totally unknowable . . . Knowledge is relevant to reality . . . Phenomena are what we make of things *per se* . . . (Op. cit. p. 252).

He quotes Herbart as saying, *"wie viel Schein, so viel Hindeutung aufs Sein."* (Op. cit. p. 247). He differs from all forms of subjective idealism in that he holds to the ontological *Dasein* of the *omega* Object, not, indeed, independently of, but regardless of, the knowing process. At the *omega* end of the formula, Tennant further disagrees with material realism in that he will not be committed to the ontological existence of non-personal space-occupying entities. He yet differs, I think, from the personalist idealist in that he is sure that the *omega* Object is not merely a think*ing,* but at least a thinking *thing,* if not a non-thinking moving *thing.* At the right hand end of the formula Tennant also disagrees with John Stuart Mill, who taught that the *omega* Object is the "permanent possibility of sensation." Tennant argues, (Ibid., p. 245 f.) "But as for Mill's formulation, we may ask whether a permanent possibility is anything at all."

In the middle of the formula, Tennant disagrees with the idealist in his insistence that phenomena must be regarded as arising in the *rapport* between two elements, the subjective and the objective. Phenomena must be phenomena of *omega* Objects. Here also he differs from the phenomenalism of Mach and K. Pearson, which he classes as practically identical with subjective idealism, leaving no room for the *omega* Object.

> The O order has a foot in both worlds, *omega* and o, but is to be counted with neither. It is some 'function' of *omega;* it is some function also of human souls. (Op. cit., p. 255).

The difference between Tennant's phenomenalism as he defines it, and dualistic realism, as has been indicated above, depends merely upon Tennant's arbitrary, and, I think, unjustifiable definition of limited types of realism as though they were the only realism known to modern philosophy.

Relativity of Knowledge

After defining his own view of phenomenalism, Tennant raises the question of the relativity of knowledge. He says that because phenomenalism repudiates realism and rationalistic idealism, it must involve some form of relativity in its theory of knowledge.

(1) Tennant rejects the view that all knowledge is comparative. He feels that in sensa we have certain positive elements given first, before knowledge of comparisons can arise.

(2) Tennant accepts the view that our knowledge is incomplete, but he denies that the limitations of knowledge are coterminous with the limitations of our senses. For example, we cannot directly sense ultraviolet or infra-red as colors, but he argues that limitation of knowledge of direct acquaintance is by no means a limitation of scientific "knowledge about."

(3) As to the theory that since our senses always involve some degree of distortion, therefore our knowledge must necessarily be

"impure" or erroneous, Tennant regards this view as doubtful. He traces it through Hume, Kant, Hamilton, Mansel, and Spencer, and concludes with the "Scotch verdict," unproved.

It thus appears that though Tennant holds that all knowledge is relative, he does not hold this view in any of its extreme historical forms.

It is clear, of course, that the relativity of knowledge is quite different from the relativity of truth, and quite different from the absence of moral certainty. Holding that even the abstract laws of formal logic and arithmetic can only be declared to be probable, so far as the purely rational elements of our thinking are concerned, one may still hold that vast areas of human knowledge are yet so highly probable that to refuse to accept and act upon such knowledge, conatively, is immoral and sometimes criminal.

Other areas of so-called knowledge may be less probable than the laws of arithmetic, and yet so probable that to refuse to accept and act upon proposition in such areas also involves serious moral responsibility.

Back of the entire knowledge question is the human being who is moral and aesthetic as well as rational. If all knowledge is relative, speaking in strictly cognitive terms, still it is highly probable that objectivity whether o, O, or *omega,* ultimately integrates. Not only the idealist and the rationalist, but the phenomenalist, the dualist, and the relativist may *believe by faith,* and may act upon the assumption, that reality integrates and that therefore integration is a *criterion* of the truth of alleged knowledge.

The word "integration" is chosen designedly. Some have preferred the word "consistency," others, Brightman particularly, prefer "coherence." I should suggest that that which is consistent *stands* together, that which is coherent *holds* together, but that which integrates, *works* together.[68] That which most broadly and deeply integrates our widest horizon of experience may be regarded as most probably true, and vast areas of alleged knowledge are so free from contradiction, and so broadly integrating in their application, that they may be regarded as so fully verified that they ought (in the moral sense) to be accepted and acted upon.

Tennant's Use of "Phenomenalism"

Before leaving the section in which Tennant presents and defines his doctrine which he calls phenomenalism, the question must be raised as to whether he has properly used the word. He says in a footnote[69]

> 'Phenomenalism' is used throughout this chapter *in its historical sense.* It is unfortunate that the name has recently been applied to the doctrine of Mach, etc., which has more kinship with subjective idealism and solipsism. [Italics not Tennant's].

But is Tennant's use of the word "phenomenalism" the historical usage? The great lexicographical authorities do not recognize any type of phenomenalism which regards noumena as knowable entities in *rapport* with the knowing subject. John Dewey in Baldwin's *Dictionary of Philosophy*[70] defines phenomenalism as follows:

> (1) The theory that all knowledge is limited to phenomena (things and events in time and space), and that we cannot penetrate to reality in itself . . .
>
> (2) The theory that all we know is a phenomenon, that is, reality present to consciousness, either directly or reflectively; and that phenomena are all that there are to know, there being no thing-in-itself or object out of relation to consciousness.
>
> . . . It is obvious that the two senses differ radically from each other, the first having its point in the assertion of a real but unknown thing-in-itself; the latter in its denial.
>
> (J. D.)

With this definition of Dewey's, the *Oxford Dictionary,* the latest unabridged edition of *Webster,* and the Philosophical Library's *Dictionary of Philosophy,* edited by Dagobert D. Runes, all substantially agree. Tennant's phenomenalism seems to be historically unheard of.

Furthermore, the group of divergent philosophies claiming the name "Phenomenology," from Hegel down to Edmund Husserl and the present philosophy faculty at the University of Buffalo, do not include anything which could be identified with Tennant's view.

Phenomena certainly have a prominent place in Tennant's epistemology, standing as they do in the interacting *rapport* between S, or *Sigma* subjects, and *omega* Objects. However, in view of the well known systems of phenomenalism and of phenomenology it is doubtful whether Tennant has any right to appropriate the word "phenomenalism" to his own system of thought, least of all, to claim that his phenomenalism is the historical one.

Tennant's epistemology is interactionistic dualism pure and simple. Dualism is a "bad word" in the modern philosophical world. Perhaps it is time for someone to point out that epistemology without dualism is a pure, undifferentiated, ineffable nonentity.

Induction

After discussing the several theories of knowledge mentioned above, and bringing forward his phenomenalism, Tennant presents a thoroughly worthwhile chapter[71] in which the topics Induction, Probability, Knowledge, Belief, and Faith are all treated. The chapter may be summarized briefly, not because the material is unworthy of intensive examination, but because it is generally in line with the views commonly held by well known types of empiricism.

Tennant first of all rejects the inductive empirical rationalism of John Stuart Mill and the English rationalistic empiricists. He holds that no inductive process has the stringency of a syllogism.

> If knowledge be defined in terms of certainty, logically derived from immediately read off fact, we must not look for knowledge in scientific treatises . . . Some rationalistically inclined logicians have invoked the principle of identity, or a principle of necessary connexion according to which the given is necessary; but *a priori* foundations have previously been argued to be inadequate or irrelevant. 'Empiricists' have pointed to the law of causation, or the principle of uniformity; but empirical attempts to demonstrate any such universal law have been shewn to be obviously circular.[72]

Tennant feels that three British authorities[73] have accurately stated the presuppositions of that form of induction which would claim syllogistic certainty; he analyzes the views of these authorities with some care, and concludes that absolute certainty is not forthcoming from induction, even as induction is conceived by them.

Tennant rejects the doctrine of the uniformity of nature.[74] On this ground he rejects Peirce's assumption that the world has "a determinate constitution," (p. 274) and he feels that Peirce's assumption that a randon sampling will be a fair sampling, is unwarranted. Tennant's rejection of the uniformity of nature includes two principles, namely, (1) Only probability can be predicated of such uniformity as may be postulated; and (2) The principle of emergence, which Tennant is inclined to accept, goes beyond the denial of certainty, and amounts to a denial of even the probability of complete mechanical uniformity in material nature. Physical nature is held to be possessed of spontaneity analogous to the free will of persons.[75]

Tennant further rejects the induction supposed to be based upon intuitive immediacy. (Pp. 264-266). He also holds that the mere enumeration theory of induction (pp. 266 f.) is fallacious.

Tennant gives great emphasis to the process which he calls "problematic induction" (pp. 268 ff.) and to Jevons' elaboration of it, through the steps of initial hypothesis, hypothetical elaboration and verification.[76]

Tennant concludes his section on induction and introduces his discussion of probability with the following words:

> As Locke taught long ago, our 'knowledge' of Nature is probable belief: recent research has but furnished more cogent justification of his doctrine than was forthcoming in his day. It has also enabled us to broaden Butler's pregnant saying, that "probability is the guide of life," into the assertion that probability is the guide of science. Scientific 'knowledge' rests on indemonstrable belief: it is not, in the stringent sense, 'knowledge' unless certain beliefs are valid: which, in turn, and again in the logically stringent sense are not 'known' to be valid. In science, as well as in other fields of thought, we

> have to purchase rationality—i.e. reasonableness—with belief which, used in all proving, is itself incapable of being proved: *credo ut intelligam* is an attitude that science did not drop, when it put away the childish things of man's primitive credulity.[77]

Probability

Bishop Butler's oft quoted phrase is found in his introduction to his famous *Analogy.*[78] He begins the introduction as follows:

> Probable evidence is essentially distinguished from demonstrative by this, that it admits of degrees; and of all variety of them, from the highest moral certainty, to the very lowest presumption. We cannot indeed say a thing is probably true upon one very slight presumption for it; because, as there may be probabilities on both sides of a question, there may be some against it; and though there be not, yet a slight presumption does not beget that degree of conviction, which is implied in saying a thing is probably true. But that the slightest possible presumption is of the nature of a probability, appears from hence; that such low presumption, often repeated, will amount even to moral certainty.

Butler then equates probability with likelihood, and from the word "likely" develops his conception of "analogy." He says,

> For when we determine a thing to be probably true, suppose that an event has or will come to pass, it is from the mind's remarking in it a likeness to some other event which we have observed has come to pass.[79]

The connection between probability and likelihood, Butler probably derived from Locke. In his Essay *Concerning Human Understanding* Book IV, Chapter XV, Paragraph 111,[80] the paragraph begins with the words, "Probability is likeliness to be true . . ."

Butler continues:

> Thus, the prince,[81] who had always lived in a warm climate, naturally concluded in the way of analogy, that there was no such thing as water's becoming hard, because he had

> always observed it to be fluid and yielding. We, on the contrary, from analogy conclude, that there is no presumption at all against this: that it is supposable there may be frost in England any given day in January next; probable that there will on some day of the month; and that there is a moral certainty, i.e. ground for an expectation without any doubt of it, in some part or other of the winter. (Op. cit., p. 68.)

Butler then continues with the opinion that for "an infinite intelligence" nothing is probable, but "certainly true, or certainly false." Then follows the oft-quoted sentence: "But to us, probability is the very guide of life."[82]

Tennant's position on probability is distinctive for the fact that he takes probability out of the realm of logic, out of the realm of actual interaction between "Real" elements of the world, and defines it within the bounds of the interaction or *rapport* between the mind itself and the world. Probability is reasonable but nonrational, in the strictly logical sense of the latter word.

Tennant's discussion of statistical probability is brief but adequate for his purposes. He quotes from an algebra book a typical sentence on the mathematics of chance, "If an event may happen in *a* ways and fail in *b* ways, and all these ways are equally likely to occur, the probability of its happening is . . . " The words "equally likely" which seem almost suppressed in the usual section on chance and probability in the ordinary algebra textbook, are shown by Tennant to be of the greatest significance for epistemology. Equal probability in chance must assume some mechanical system of regularity,—a plane surface on which dice may roll, a grab bag with similar marbles, a relatively uniform system of natural law, the validity and applicability of the axioms of arithmetic, geometry and logic. Unless we know in advance something of the set-up, more frequency of occurrence gives us not the slightest degree of probability. Conversely, if we know that a penny is evenly balanced, throwing heads one hundred times in succession gives us not the slightest ground of probability as to the next throw. Thus mathematical or statistical "probability" calculations are always based in part upon some knowledge of a governing situation.

Tennant argues that "the basal postulates cannot be probable, in their turn, in the same sense; for there are no more ultimate propositions to which they have relation." (P. 283.) These "basal postulates" may be held to be probable in a sense which involves "mere circularity: and to such circularity common sense and science are committed," (p. 284) but Tennant is not willing to admit that the basic "axioms" of mathematics and logic are logically "probable." As has been suggested above, even these axioms contrary to Tennant's view, may be held to be "probable." All intelligences seem to make some postulation of some kind of integration (or non-integration) in the empirical world. For those who follow traditional logic, the law of contradictories is a necessary consequence of the postulate of integration. For irrationalists (to be distinguished from non-rationalists) this law of contradiction is not a necessary consequence from the integration (or non-integration) postulated. These facts illustrate the theory that probability is a characteristic of all aspects of all human epistemology, and that whatsoever any finite mind cognitively[84] believes, it believes "by faith,"—reasonable faith, but faith nevertheless in which probability is always an element.

Tennant quotes Huxley as follows: "It is of no use to talk to me of analogies and probabilities," said Huxley; "I know what I mean when I say I believe in the law of inverse squares, and I will not rest my life and my hopes upon weaker convictions." But Tennant notes that Huxley came to change his mind, and conclude that, "Our sole certainty is momentary."[85]

It would seem more precise to answer Huxley's earlier opinion by showing that "I know what I mean when I say I believe in the law of inverse squares," can only mean, "I have the greatest certitude of the most probable validity and applicability of the law of inverse squares as functioning in my fundamental and most probable postulate of an ontological existing world." If that is all Huxley's words could possibly mean when correctly analyzed, and I think it is, comparison might be made with the theistic cognitive position which, for parallelism of expression, might be stated: "I have the highest degree of certitude in the theistic postulate, from which, as the most basic postulate of all, I find the law of inverse squares not only valid and applicable in the sense of truth, but also purposeful in the sense of aesthetics and ethics." Thus the theistic postulate may be presented as cognitively the most probable of all, when viewed as the integrating postulate lying back of mathematical and logical forms.

Tennant does not quite go to such an extreme position in the matter of probability, though he approaches the nearest to it in this section of his work. Locke and Butler are, of course, far this side of Tennant. For them intuition in the etymological sense of the word, "to look at," *intuere,* is knowledge. Locke says[86], "If I see a man walk on the ice, it is past probability, it is knowledge." Butler makes a similar distinction between intuitive truth and inference.[87]

Tennant continues

> Probability is, in the last resort, a matter of the downright alogical, the psychologically inevitable, the vaguely-called instinctive, the expectation based on usualness, the hope that springs perennial: our corpus of so-called knowledge is at bottom non-cognitive. Reasonableness is thus largely non-rational. (P. 284.)
>
> The probability that is the guide of life, and that is involved in analogical induction, contains elements not wholly derived from past experience, and is much more than statistical frequency . . . Even in science, 'probability' seems but to refer to subjective confidence: by a trick of grammar, it is made to seem to be a quality of things or propositions. (P. 288.)
>
> . . . the feet of science are part of logical iron, part of psychological clay. (P. 289.)
>
> . . . the majority of the representatives of science would not be perturbed at hearing it to be a discovery of logic, that science walks by faith and cannot give a 'rational', but only a 'reasonable', reason of the hope that is in it. The news would not seem to them new. (P. 290.)[88]
>
> Nothing logical constitutes the 'probability' of science's presuppositions; it is constituted simply by faith, of which belief is actually an outcome. The way to religious faith is

> open to all; and the rational justification of faith, is the fact that without it we lack assurance that the world is reasonable, in the sense of not being meaningless. But without faith, that in essentials is akin to that of religion, there is no scientific 'knowledge' possible as to the Actual. (P. 296.)
>
> . . . there is no absolute certainty about the bulk of what passes for positive science of the Actual or existent, because its very foundations are but matter of certitude, and their verification is ultimately pragmatic, in the same sense (if in different degree) as is that of religious beliefs. (P. 297.)
>
> 'Faith' is thus not a word to be confined to the theological vocabulary . . . This does not merely mean that "there is more in life than logic"; it means that there is more in 'knowledge' than logic, and more in reason and reasonableness than ratiocination and rationality. Conation is genetically a source of all knowledge higher than involuntary sense-knowledge. Analytically, induction is found to contain postulation or faith-venture, creative imagination, pursuit of end; and its verification is discovery of applicability, not logical certification of photographic correspondence with Reality. (P. 298.)
>
> The fundamental belief in which knowledge or science indulges, is a following of an end and a satisfaction of a human need, as much as is the fundamental belief which issues in theology. (P. 299.)
>
> Empiricism can now claim to have discovered in faith, the common root of scientific 'knowledge' and religious 'belief'; in reason, a teleological, as well as a rational or logical factor. (P. 305.)

Knowledge, Belief and Faith

Tennant's section on "Knowledge, Belief and Faith" (pp. 290 to 305) is largely lexicographical and psychological. Its chief value is that it carries forward the discussion of probability as related to reasonable faith.

Tennant's book, *The Nature of Belief,* published by the Century Press in 1943, adds scarcely anything to the subject as discussed in his *magnum opus,* and has little value for one who has studied the larger work. However, it furnishes a rather clear summary of Tennant's opinions on the subject of belief and faith for one who has not read his *Philosophical Theology.* A few quotations will show that Tennant's position on the subject has not shifted or developed between 1928 and 1943.

> . . . reasonable belief is based on probabilities, authority and testimony, all of which involve somewhat of the rational and somewhat of the alogical. (*The Nature of Belief,* p. 26.)
>
> . . . firstly a man must entertain beliefs that are not purely rational, if he would not be a fool, and secondly, he must rely on judgments of his fellowmen which he cannot always verify, if he would attain to the fullness of the mental stature of manhood. (Op. cit., p. 35.)
>
> It may now be concluded that recent inquiry as to the foundations of inductive logic leaves no escape possible from the inference that there is no purely logical justification for regarding the body of Beliefs established by the inductive method of science as knowledge, in the stricter sense of that term. Probability, in the last resort, is alogical. The probable is founded on Beliefs which are not logically certifiable, but which compel convincedness because of the success which attends action upon them. (Op. cit., p. 45.)
>
> It has been pointed out that there is nothing unique in *religious* faith . . . religious faith is psychologically of the same nature as that which underlies inductive science, and the only difference lies in the objects to which the faith refers. (Op. cit., p. 71.)
>
> Natural theology, apart from the sciences is baseless; and natural science, stopping short of its culmination in theism, has the appearance of an arbitrarily arrested growth. (Op. cit., p. 117.)

Tennant as a Theologian

In this little work on Belief, Tennant takes up the role of a theologian far more than he does in his *magnum opus,* even though the latter is entitled *Philosophical Theology.* It is expected of a theologian that he will be (1) competent in the history of doctrine, (2) competent in methods of exegesis, and (3) reasonably competent in philosophy. This thesis on Tennant's empiricism is grounded upon the writer's conviction that in the realm of philosophy Tennant has kept alive and re-emphasized an empirical element in the philosophical presuppositions of historical theology, which is in great need of emphasis in our generation. He has thus made a philosophical contribution which should be regarded as thoroughly worthwhile.

As to Tennant's competence as a theologian in the history of doctrine, I have already indicated that he writes on the "soul" with utter disregard of the scholarly works of others in the field. Although it is outside the bounds of this thesis, it may not be amiss to remark that his earlier books on the doctrine of sin, although they do show some genuine original research, yet exhibit throughout a naive Pelagianism almost entirely ignorant of the great literature which has been written from the Augustinian point of view.

Attention is called to Tennant's workmanship in exegesis at this point merely because his little book on *Belief,* now properly before us under the subject of epistemology, exhibits several striking phenomena.

(a) Tennant says

> Such being the meanings of *pistis* [faith] in the New Testament, it will be seen that the faith described by the writer of the Epistle to the Hebrews is of a unique kind. He uses the noun without its article, signifying that he speaks of faith in the abstract, or as a general psychical attitude, and not of faith of the peculiarly Christian kind. Indeed he regards faith as a mental functioning that may be found in any human mind; for among his instances of the faithful culled from the Old Testament he includes the heathen Rahab, one "who believed not in the God of Israel." (Op. cit., p. 66.)

The exegetical phenomena here are quite amazing. It is true that the use of a noun without the article is likely to indicate emphasis upon kind, rather than individuality. Not to mention such great American authorities as A. T. Robertson, Smyth, and Gulick, the great British grammarian, James Hope Moulton of Cambridge[89] says, "For exegesis there are few of the finer points of Greek which need more constant attention than this omission of the article when the writer would lay stress on the quality or character of the object." (P. 83.)

But to interpret the anarthrous use of the noun "faith" in the 11th chapter of the Epistle to the Hebrews as indicating one kind of faith rather than another kind,[90] is without foundation in the science of grammar. Indeed this great passage is discussing faith qualitatively, but to determine that it is the quality of faith in general rather than the quality of faith of the Biblical tradition, is not a matter of grammar but a matter of examination of the literary context.

Tennant is aware of this fact as evidenced by his introduction of the case of Rahab. A reader of Tennant's work would naturally suppose from the way in which he has used the words in quotation marks, that the phrase "who believed not in the God of Israel" is used to describe Rahab in the context under discussion. Discovering that this is not the case, the reader would next suppose that this phrase must be applied to Rahab in the Old Testament narrative to which the author of the Epistle to the Hebrews is making allusion. But neither is this the case. Quite the contrary, Rahab is there presented as saying, "Jehovah your God, He is God in Heaven above, and on earth beneath." (Joshua 2:11).

Where did Tennant get the words which he places in quotation marks?[91]

(b) Another illustration of Tennant's methods is found in the following sentence,

> If Liddell and Scott's abridged Greek lexicon is exhaustive in its list of meanings borne by *hypostasis,* the word never means, "giving substance," but merely "substance" . . . (Op. cit., p. 67.)

In the first place Liddell and Scott's abridged Greek lexicon is not exhaustive and anyone who works with Greek to any extent knows that it is not. Although the long-awaited new edition of Liddell and Scott, published complete in 1940, may have been unavailable to Tennant as he composed his little book, certainly the unabridged eighth edition published in 1897 was available at Cambridge during the years of the war. The definition in the eighth unabridged edition is divided into two parts "A. as an act" and "B. as a thing." Under the former heading the first definition given is "A supporting, support *tou barous* [of the burden] Arist. P. A. 2. 16, 7." The latest unabridged edition continues the same division of the definition, gives several additional classical references to the word as used to describe *an act,* and calls attention to the Septuagint rendering of Psalm 69:2, "I sink in deep mire, where there is no standing," where the Hebrew word *ma'amadh,* "standing" is rendered by the Greek word *hypostasis.*

The translation to which Tennant takes exception may indeed be somewhat conjectural, and not directly supported by exact instances of usage, but the word clearly does mean the act of giving support. To imply that it means "merely 'substance' " is not warranted.

(c) A third illustration of Tennant's exegesis in his book on belief is found in the following words:

> The writers of the books of the New Testament do not lay claim to inspiration; but the Church, after selecting from forthcoming Christian literature such as formed its canon, regarded the canonical books as inspired. (Op. cit. p. 111 f.)

No one in any way familiar with important critical studies in the history of the New Testament canon could have written the last clause of the above quotation.

The following correspondence throws further light upon Tennant as a theologian:

> The National Bible Institute, 340 West Fifty-Fifth Street, New York 19, N. Y., February second 1948, Prof. F. R. Tennant, D. D., The Knott, Cambridge, England. My dear Prof. Tennant: You have very kindly assisted me in the past two years with replies to some of my questions relating to your published works. May I please ask another favor?
>
> I find myself at a loss to defend your position on three points in your book *The Nature of Belief*: (1) How may one defend your unidentified quotation on Page 66 following the name

> of Rahab, in the light of Joshua 2:11? (2) The unabridged edition of Liddell and Scott's Greek Lexicon defines the word *hypostasis* both "as an act," and "as a thing." Would this not seem to modify your opinion (Page 67) that the word means "merely 'substance' "? (3) I find it difficult to justify your statement (Page 111 f.) on the claim of the New Testament writers to inspiration, in view of the rather striking claims found in the first chapter of Galatians, and in the last chapter of Second Thessalonians. Perhaps you could refer me to some more extended work on that subject?
>
> Would you be so kind as to indicate also whether you are willing to permit me to quote whatever comment you may make on the above three questions?
>
> With much appreciation of your assistance, I am, very sincerely yours, J. Oliver Buswell, Jr., President.

To this Tennant replied:

> The Knott, Lady Margaret Road, Cambridge, England, Feb. 5. 48. My dear Sir: As to your first question, it would have been more correct to say that Rahab was a Canaanite and by birth one of those who "believed not" (Heb. XI. 31): The passage Josh. II. 11 undoubtedly credits her with belief that Jahveh was the God.
>
> As to Question (2), my edition of Liddell and Scott's abridged Lexicon does not contain the statement that 'hypostasis' means an act as well as a thing: the meanings there mentioned are all of the latter kind.
>
> Question 3: There seems to me to be no evidence in Gal. I or 2 Thess. III that S. Paul regarded his epistles as inspired. Belief in the inspiration of the *New Test.* is not traceable, I believe, till late in the 2nd Century, when the canon was approximately formed.
>
> I am willing that you may quote what I have written. With kind regards Yours sincerely, F. R. Tennant.

Tennant's reply to the first question completely destroys his argument from the case of Rahab. His reply to the second question speaks for itself. He must have known that the marginal reading in the American Revised version was not wholly unsupported, but evidently he prefers to stand by his abridged lexicon and ignore the evidence cited in the larger work. As to the third question, in the first chapter of the Epistle to the Galatians, Paul claims such authority for his message as that it must be accepted as authoritative even if it were contradicted by an angel from heaven. Further, in the last chapter of II Thessalonians, he says "And if any man obey not our word by this epistle, note that man, and have no company with him, that he may be ashamed. Yet count him not as an enemy, but admonish him as a brother."

Another example of Tennant's workmanship as a theologian may be appropriately inserted at this point. The statement "... the ancient Hebrew regarded himself as rendered unclean by entering a country presided over by other gods than his" (*Philosophy of the Sciences,* p. 138) is unsupported by historical data, and is obviously contrary to the well-known fact that ancient Hebrews of "the dispersion" noted travelers and traders, Jews from whom sprang Saul of Tarsus and Philo of Alexandria, were generally more zealous for purity and piety than even their countrymen in Palestine.[92]

Summary of "The Nature of Belief"

Tennant's treatment of the nature of religious and scientific faith in *The Nature of Belief* is substantially identical with the treatment of the same topic in his *Philosophical Theology*.[93] The book is noteworthy for a section on the historical basis of religious belief, but this will be discussed in the section on the epistemology of science.

Discussion of this section of his work may well be concluded with the stanza which he twice quotes[94] from Hartley Coleridge:

Think not faith by which the just shall live
Is a dead creed, a map correct of heaven,
Far less a feeling fond and fugitive,
A thoughtless gift, withdrawn as soon as given;
It is an affirmation and an act
That binds eternal truth to present fact.

Religious Experience

Tennant's chapter on "Religious Experience"[95] is important for its negative conclusion. He does not believe that evidence for theism can be derived directly from religious experience as such.

Tennant begins in his usual vein of genetic psychology. "... the only 'matter' of knowledge, is the sensorily impressional. The simplest percepts are only ultimate actual analytica of which psychology knows." Tennant is here, as usual, oblivious of the fact that *Gestalten* are found in, and may even constitute, the simplest analytica of the *ordo cognoscendi.*

He calls attention to the fact that in his discussion of rationalism he has considered and, he believes, refuted, one challenge to his genetic view. Rationalism fails to provide a kind of knowledge independent of the *rapport* of a mind with its Objects. Does religious experience offer a challenge to Tennant's main thesis, his genetic view of knowledge? Is this another source of knowledge aside from the *rapport* of the mind with its sensa?

Taking up first the type of religious experience which does not attempt to give a rational account of its results,—ineffable experience,—Tennant remarks of the mystic that

> As to his experiencings, *qua* mental occurrences, and as to his convincedness or psi certitude of their truth claim, he can of course be trusted. Here he is 'invulnerable' as he is harmless. (P. 314.)
>
> If then we cannot, without begging the question at issue, positively repudiate the mystic's claim, and so must leave him invulnerable as to his private conviction, we can also leave him powerless to substantiate his claim. And we can indulge reasonable doubt as to his own interpretation of his experience, because another, a sufficient and natural, explanation of it lies to hand. (P. 318 f.)
>
> No one doubts the actuality of religious experiences; they are psychical occurrences. (P. 329.)

Tennant holds that oneness with the Absolute, so frequently claimed by mystics, can mean nothing at all unless it means numerical identity. However, numerical identity excludes the possibility of any kind of experience.

> Nor is truth the existence of existents; it is a relation between two distinct kinds of entity: objects of some kind, and the judgments *about* them that are valid *of* them. Where such intrinsic duality is absent, truth is an irrelevant predicate, a nonsignificant word. Knowledge of ineffable truth, is a contradiction in terms. (P. 314 f.)

Tennant quotes from William James several mystical phrases which the latter quotes from Jacob Boehme, phrases such as becoming nothing, sitting down in his nothingness, glorifying God, becoming identical with God. Such expressions James had said ought "to make a critic stop and think."

But Tennant adds,

> The critic is not given occasion to hesitate by revelations to the effect that a nothing can do something and at the same time not do it, or that a finite ego can at the same time be and not be: and he does well to call nonsense by its name. (P. 321.)[96]

As to the ecstatic method of mysticism taught by Pseudo-Dionysius, Tennant says

> The mystic's preparation for *theoria,* [vision or speculation] as described, e. g., in the foregoing quotation from Pseudo-Dionysius, is evidently a method of stupefaction of the normal self, a working up to a pathological state or a condition of enhanced suggestibility, a process having resemblance to hypnotisation and the means adopted nowadays for evoking the subliminal. Indeed, the mystic's trance or raptness is (*ps*)[97] akin to states induced by other well-known methods, whether he would so class it or not. It is comparable with what is called the anaesthetic revelation, with the effects of hashish, and so forth. (Op. cit. p. 322.)

But there are other types of mysticism claiming to give some more or less intelligible reports of mystic experiences.

Tennant takes up first Professor Otto's work *Das Heilige* with his claim of direct contact with the numinous[98] Reality, and Schleiermacher's claim of God-consciousness through the feeling of dependence. Tennant significantly shows that claims of either direct or mediate psychological contact with numinal Reality, apart from the ordinary processes of sensory empirical evidence, do not present verifiable data sufficient to warrant acceptance of the mystical method.

Tennant argues that,

> As mystics have been given to see, sometimes, the manner of transpiring of events that presumably never transpired, their testimony as to other alleged revelations becomes suspect; certainly they have seen what they were by education predisposed to see. (P. 319.)

Sir William M. Ramsay,[99] Professor of Humanity, (i. e. Classical Literature) in the University of Aberdeen, in his article or lecture entitled "The Worship of the Virgin Mary at Ephesus," gave a study of the visions of Anne Catharine Emmerich, a German nun, who "saw" the alleged residence of the Virgin Mary near Ephesus. Ramsay with his broad acquaintance with classical archeology and with his deep interest in religious things, presents a fascinating comparison of the descriptions in the visions, with the geography of the place. Ramsay's entire article constitutes a remarkable illustration of Tennant's words, "Mystics have been given to see . . . the manner of transpiring events that . . . never transpired . . . ".

Tennant argues that mystical contact with numinous Reality should be interpreted "on the way back, so to say, as distinguished from on the way out." (P. 311.) That is to say, first comes religious belief based on inferential grounds and tangible data. Then religious and mystical experiences may be regarded as corroborating but subsequent to, the data forming the basis of previously existing religious beliefs.

This point is brought out in Ramsay's work referred to above. The visions did not correspond accurately with geography, and were impossible to accept as original data from which knowledge of geography might be derived. However, Ramsay was able to show that the various elements in the visions were derived from data commonly known to tourists and travelers, this data being combined in a confused and contradictory manner, but largely recognizable. For example, the view of Ephesus alleged to have been seen from the southeast where the shrine is located, is easily recognizable as the common view which is seen by tourists as they approach Ephesus from the north at a considerable distance from the shrine.

With regard to numinal Reality Tennant says

> It cannot be proved that the mystic's data have no relation to ultimate Reality; it can perhaps be shown that there is no good reason for asserting that they have the relation which theistic mysticism claims, until theism be established. (P. 316.)
>
> Doubtless resort to the mystical interpretation has sometimes been prompted by the ancient rationalistic dogma, that man has an intuitive reason that can read immediately the intelligible truths, a faculty which [mystical] theology affirmed to be a spark of Deity, and religious mystics—especially of the neoplatonic type—found to hand and invoked. This, however, is afterthought read into mystical experience before it is "immediately" extracted therefrom. (P. 323.)

Tennant concludes his section on "Religious Experience" with a comparison of religious belief with scientific belief, indicating that in his opinion although faith is necessary,—faith of the same kind, in both scientific and religious cognition,—yet antecedent belief is of more importance in religious experience than in science. Tennant says,

> . . . religious experience seems to be conditioned, as to both its existence and its distinctive nature, by antecedent belief, over and above all such as is indispensable for knowledge of the physical. (P. 332.)

Not only does Tennant hold that religious experience requires a greater *degree* of faith, he also indicates, in the conclusion of his discussion of this subject, that religious experience requires a different *kind* of verification.

> In science, verification consists in appeal to the external control of percepts; results by which religious postulation is pragmatically justified, are, on the other hand, concerned with valuation rather than with existential knowledge. (P. 332.)

But does religious belief require a greater degree of faith than scientific belief? Is science concerned with the existential rather than the valuational? And is religious belief concerned with the valuational more than the existential? Upon the basis of Tennant's data it may be argued, contrary to his opinion, that religious cognitive belief requires neither a greater degree, nor a different kind of faith. Perhaps the reason religious cognition seems to have these greater and different requirements of faith, is that a change of religious belief, *aside from the cognitive element,* also requires a renovation and reorientation of personal nature and ethical alignments and loyalties, familiarly called "the new birth," *genesthai anothen,* (John 3:1-21) or *palingenesia,* (Titus 3:5.)

Bertocci[100] *on Tennant's View of Mysticism*

Professor Bertocci,[101] though an idealist of the personalistic school and thus in a background from which he might be expected to accept evidence of direct personal contact with numinal Reality, nevertheless, in his book, goes along with Tennant in his criticism of the evidential value of religious experience. This is true not only in his direct discussion of Tennant's views on the point, but in his many references to other than sense-grounded empirical evidence.

The attitude taken in his book hardly seems consistent with the abstract of his paper on "The Logic of Naturalistic Argument Against Theistic Hypotheses."[102] In that abstract he says, "But the very point at issue is whether what the sense-bound empiricist considers the world-as-a-whole *is* the whole of the world."!

Certainly the word "sense-bound" applies to Tennant's genetic theory of knowledge. Tennant's genetic psychology in its very essence insists that alleged knowledge must start with, and be developed in *rapport* with, sensa. In the paper itself above referred to, as printed in *The Philosophical Review,*[103] Bertocci insists that empiricism must include " . . . both the data of existence and the data of value . . . [as] various aspects of experience . . . ". He objects to "sense-bound empiricism" (Ibid. p. 86) and he argues

> The scientific method *does forbid* the assertion of anything which cannot be ascertained by operations involving public

> perceptual observation. If the only responsible assertions we can make are those which are in accordance with a method which was adapted to sensory reality, then it is clear that this method, strictly applied, does indeed legislate for all reality. (Ibid. p. 84.)

This sentiment is quite contrary to Tennant's fundamental thesis. I believe there must have been an unconscious shift in Professor Bertocci's emphasis between the time of the writing of his book, published in 1938, and the time of the writing of his paper above referred to, read before the Eastern Division of the American Philosophical Society in February, 1946.

I did not hear the reading of the paper, due to an unannounced shift in the order of the speakers, but I heard a portion of the discussion which followed. Professor Bertocci defended the evidential value of religious experience as such. Professor Sidney Hook admitted the possibility of such evidential value but argued that it must be a type of experience open to public investigation. This is in line with a limitation, "operations involving public perceptual observations," to which Professor Bertocci objects in the paper as printed. Evidently Professor Hook was objecting to Bertocci's argument against that limitation.

On the occasion of that discussion (the February, 1946, meeting of the Eastern Division of the American Philosophical Society), Professor Brightman remarked that in conceding something to the evidential value of religious experience, Professor Hook was making an admission contrary to the interest of his own naturalistic position.

Professor Hook's remarks were striking and relevant. He said in substance, "I do not deny religious experience. I do not deny the existence of God. Maybe there is a God. Maybe there is a fairy on the other side of that lampshade, but I have been presented with no evidence of it!"

Tennant evidently regarded Bertocci as in agreement with him in 1938. In his foreword to Bertocci's book, Tennant classifies (1) those who believe in religious experience as an immediate apprehension of unique data, (2) those whose approach he describes as dialectical, or *a priori,* and (3) those who pursue the empirical method. Tennant says, "It is this last mode of approach which, almost exclusively, is illustrated and discussed in the essay of Mr. Bertocci." It is to be noted that Bertocci continues to regard his own views as empirical, but that he now seems to include religious experience as having direct evidential value apart from what he calls "sense-bound empiricism". Thus Tennant's classification of Bertocci as an empiricist would still hold, but classifying him as an empiricist *not included* in (1) above, would not now seem to be correct.

An explanation of Bertocci's apparent shift in attitude toward the evidential value of religious experience as such, might be found in another aspect of his relationship to Tennant's philosophy. Tennant makes a sharp distinction between phenomena and noumena. He believes in the existence of a noumenal Self, and in the existence of a noumenal *omega* Objective world. To this distinction Bertocci frequently takes exception in his book.[104] He does not accept Tennant's "causal noumenal world which . . . is relatively independent and may be non-spiritual." Bertocci says, "But since activity which is not will is meaningless, we follow Berkeley and Lotze, Bowne and Brightman, in holding that the noumenal inorganic world is God's will." (Ibid. p. 253.)

It is the writer's conjecture that for a personalistic idealist, for whom there can be no distinction between phenomena and noumena, and for whom the inorganic world is numerically identical [105] with the will of God, the distinction between religious experiences not open to public perceptual observation, and those open to such observation would be difficult to maintain.

For the dualistic realist, phenomena are involved in *rapport* between noumenally existing minds and noumenally existing objects. Our cognitive conclusions are based upon data open to public investigation. As the realistic dualist sees it, we have our ineffable affective experiences which we attribute to noumenally existing Objects of which we believe we have good and sufficient tangible evidence, but we regard as maudlin and morbid, the claims of affective experiences which cannot be assigned to *rapport* with noumenal objects whose existence may be supported by reasonable public evidence.

We do not expect to analyze under a microscope the thrills of the beloved or of the lover, but when these are mentioned in poetry and song we do not regard them as abnormal, for good and sufficient objective reasons. On the other hand we regard with pitying disgust the autoeroticism exhibited in H. H. Bawden's article entitled "We Call It Mind"[106] under the heading "Love in Absentia."

For the realistic dualist, phenomena are caused in the *rapport* between noumenal minds and noumenal objects. Phenomena which are caused by drugs or physical injuries or high blood pressure or fever and infection, are just as truly matters of *rapport* between minds and *omega* Objects as the phenomena which we ordinarily call normal. The reasons we use the designations "normal" and "abnormal" are irrelevant at the present moment, but the distinction, for a dualistic realist, is grounded in a distinction of types of noumenal objects.

Now, on the other hand, for one who holds to Professor Bertocci's view, every bite of food, every stubbing of a toe against a stone, every physical and chemical process, is direct contact with the thought life of God. Since there is no *selbständig* noumenal existence, either mental or non-mental, but *only* phenomenal data, all experience, whether in the chemical laboratory, on the street, or in the prayer meeting, is direct contact of numinal Reality with numinal Reality. It is not difficult to see, therefore, how Bertocci, holding that the noumenal inorganic world is nothing but the will of God, could easily swing away from Tennant's "sense-bound empiricism" to a type of "empiricism" which deals with matters not always open to public investigation. If a realistic-dualist without field glasses, clearly sees a squirrel in a tree top two miles away, he ascribes the phenomenon to an *omega* Object or noumenal situation of the order of high blood pressure. For the non-dualist-non-realist, however, both the squirrel and the field glasses are numerically identical with various aspects of the will of God, and there is no good reason why the squirrel may not be apprehended directly without the use of the field glasses.

Tennant's position is opposed to Bertocci's. It is dualistic realism in all but name. Tennant, on this point, is found in the main stream of the Judeo-Christian tradition in which theistic evidence has generally been held to be of a public and tangible nature, and appeal to other than "sense-bound" experience has been regarded as invalid.

Scudder on Tennant's Doctrine of Religious Experience

Scudder in his work on Tennant[107] consistently opposes Tennant's denial of the evidential value of religious experience apart from sensory experience. Scudder's view is that of the monistic critical realism of D. C. Macintosh, of whom he says in his Preface (op. cit. viii), "The constant encouragement of Professor D. C. Macintosh of Yale has been as indispensable as his scholarship." Scudder devotes a chapter of sixty-three pages to "An Examination of Tennant's Criticism of Religious Experience."

In his definition of numina he says

> *Numina* is a term corresponding to sensa and as such designates the phenomenal appearance or appearances of deity to a subject. For religious epistemological (monistic) realism all manifestations of God's presence are objectively real . . . for the critical realist some more intimate relation is invoked to overcome absolute dualism as well as the disadvantages of extreme realism and of extreme subjectivism. In comparing *numina* to sensa, a critical realism is assumed; namely, that the manifestation of God is neither totally or absolutely real independently of experience, nor totally or absolutely subjective experience or idea of the subject, but a partial combination of idea and reality. (P. 144 f.)

Scudder proceeds to illustrate religious experience on the analogy of "being in love" and "patriotism." " . . . it may be said that as patriotism is the reciprocal love of man and country for each other, religion is a reciprocal love of man and the world (universe) as-a-whole for each other." (Ibid. p. 146.)[108] These words, as D. C. Macintosh's monistic realism always seems to the writer, are a kind of interactionistic dualism which insists upon calling itself monistic. It is a "square circle," a contradiction in vocabulary.

Macintosh and Scudder insist upon the objectivity of numinal reality, as opposed to subjective idealism. Scudder rejects Tennant's view, in favor of

> . . . an intuitive awareness which rises above the discursive reason to grasp the reality of God. This grasp is not infallible, nor complete, but it is subject to its own type of empirical verification and as such has a place in a comprehensive theology. (Ibid. p. 209.)

Scudder indeed rejects the idea of a separate religious faculty, as Tennant does, but Scudder argues that

> . . . religious experience of the milder type is a unique function of the whole normal rational mind as it makes an empirical contact with religious reality. The validity of the conscious experience reflects a valid trust in the capacity for religious experience which underlies it. The idea of religious experience as the result of discursive reasoning either explicit or implicit is rejected. (Ibid. p. 212.)

In beginning his final chapter, his own view of "The Validation of Theism", Scudder heads his first main section "Religious Experience the Primary Ground of Theism," and proceeds to say

> The first and central point of departure must be a direct religious experience . . . the first requirement for making the divine existence credible is to start with the initial experiences which make that belief possible, because no amount of argument will ever "prove" the existence of God to those who lack the experience. Given an initial experience of God, the arguments then acquire new significance, in that they help confirm and integrate this experience into a more comprehensive world prospective. Without religious experience the general rational arguments do not lead to a validation of the God of religion. (Ibid. p. 214.)

Tennant's view may well be defended against all that Scudder says. Tennant, e. g., draws an analogy between the knowledge of other persons and the knowledge of God. How do I become acquainted with a friend? Do I first have an intuitive "experience" of his inward being, and afterward become convinced that he manifests himself in time and space? Do I not on the contrary first see his space-occupying person, then hear some friend pronounce his name, then see the expression of his face and feel the clasp of his handshake? Does not a vast amount of data open to public investigation always precede any sympathetic intimacy of mind with mind? And is the latter not reasonably to be based upon a process of inductive inference from tangible data?

Tennant does not mean, of course, that our present day knowledge of God includes knowledge of a space-occupying body, but nevertheless his analogy is sound. Inductive knowledge of God is based upon observation of his effects in time and space.

Conclusion

In concluding this discussion of Tennant's views on the evidential value of religious experience as such, apart from what Bertocci calls "sense-bound empiricism," it may not be irrelevant to emphasize the suggestion that Tennant's view of evidence, that of the Biblical theism of the Judeo-Christian tradition, has no room for evidence derived from a non-sensory religious experience only. Testimony of religious experience is never to be accepted apart from its correlation and integration with previously established empirical, historical data. Moses vigorously warned his people against any prophet or "dreamer of dreams" whose messages could not thus be verified. (Deuteronomy 13:1-5; 18:15-22.) The prophet was required to present his credentials and his people were warned to be extremely critical of one whose message could not be verified by public examination.

Isaiah speaks similarly

> And when they shall say unto you, Seek unto them that have familiar spirits and unto the wizards, that chirp and that mutter: should not a people seek unto their God? on behalf of the living should they seek unto the dead? To the law and to the testimony; if they speak not according to this word, surely there is no morning for them. (Isaiah 8:19, 20 R. V.)

The cosmological and teleological arguments (not in the Thomistic form) are frequently appealed to by Biblical writers. Messiah coming "in the flesh" is the heart and center of the Judeo-Christian tradition. The non-historical Christ of Schleiermacher and of much modern religious sentiment, is a creature of the imagination of a radically different religious movement.

Tennant's view of evidence is in line with, but he fails to take advantage of, the fact that according to the Biblical tradition, God caused a body of literature to accumulate through a period of many centuries, in a developing cultural movement, the various portions composed by numerous authors, the whole subject to critical investigation as to its language, its historical background, and its message. According to this view, God also caused a life to be lived at a critical juncture in the history of civilization. It is in the written book and the historical life, not in non-sensory religious experience, that evidence is to be found.[109]

Whatever its merits may prove to be, upon investigation, the Biblical nucleus of the Judeo-Christian tradition claims to meet the challenge of the naturalist as expressed by Sidney Hook (see p. 119 above) as fittingly as one right hand meets another in a friendly clasp.

The Nature and Limitations of Scientific Knowledge

The word "science" from the Latin *scientia,* or the Greek *gnosis,* is in itself so general a term for systematized knowledge, and has suffered so many arbitrary usages at the hands of so many different types of writers, one would expect that a philosophical theologian like Tennant would avoid arbitrariness in his use of the term; or if he should choose to be arbitrary in his definition, one would expect that at least he would be consistent in his arbitrariness. Tennant, however, pursues an extremely arbitrary course in his usage, and, in the development of his thought, from Volume I of his *Philosophical Theology,* (1928) through his *Philosophy of the Sciences* (1932) to his *Nature of Belief* (1943), he shifts his ground as arbitrarily as he took his position in the first place.

Speaking in general, in the *Philosophical Theology,* science is pure, abstract, almost Kantian. It is vigorously and repeatedly denied that the historical is ever the scientific. One is reminded of the astronomer who was asked, "So you study how the stars go round?" Replied the astronomer, "No, I only study how the stars ought to go round if there are any stars." But in the *Philosophy of the Sciences* science becomes historical, and in the *Nature of Belief,* history is itself an important branch of science.

To present in detail Tennant's views as set forth in his *Philosophical Theology*: he begins first of all by stating that

> It is by its method rather than its subject matter, that science is characterised . . . Half a century ago it was taught that the scientific method is the sole means of approach to the whole realm of possible knowledge . . . Such belief is less widely held today.[110]

It is obvious from the last sentence above that Tennant is ignorant of the experimentalism of John Dewey and of the scientific claims of the naturalists, whose views are widely held today.

This chapter of Tennant's is largely devoted to the limitations of science and the boundaries of other important disciplines which, he holds, science does not include.

(1) Science includes only the non-historical repeatable.

> The common and the repeatable are necessarily in some degree abstract; whence it follows that science isolates itself from history, and the Nature which it studies is a skeleton or a diagram as compared with the Nature constituted by the presentational continua of experience, and by the behaviour and interactions of the world's Real members. (P. 337 f.)
>
> The world is irreversible, or rather, hitherto unreversed; that of scientific thought is not. (P. 340.)
>
> History is what does not, and cannot, repeat itself; it is knowledge of the 'unrepeatable', even in the figurative sense in which science is said to be knowledge only of the 'repeatable': i.e., of what is so like something numerically other, as, for purposes of science, to admit of treatment as if it were identical or literally the same again. Everything that happens, or is concretely actual, is thus historical: *die Natur ist mur einmal da* . . . history is of individuals, science is of units; history is of the concrete, while the Objects of science are conceptual types. (P. 343.)
>
> Science *makes* repeatables out of the historical and un-

> repeatable by abstraction, setting up concepts in the place of percepts. (P. 344.)
>
> [Elimination of the unrepeatable] characterizes science by indicating its demarcation from what may broadly and technically be called history . . . (P. 338.)
>
> Indeed, the ideal, but never completely attainable, goal of rational science, as of rationalistic philosophy, is to dispense with sensory *posita, idia,* etc., the concrete and historical, and to supersede that realm by one that is rational: the real by the Real. (P. 339.)

Now this arbitrary limitation of "science" to the reversible, would exclude the science of physics as Tennant so thoroughly knows it.[111] Tennant just a little later (Volume I, p. 356) refers to entropy as a scientific concept. But the concept of entropy is the very contradiction of reversibility. The irreversible is, of course, by definition non-repeatable. Only the reversible is repeatable.

Planck[112] says

> The second law of thermodynamics states that there exists in nature for each system of bodies a quantity, which by all changes of the system either remains constant (in reversible processes) or increases in value (in irreversible processes). This quantity is called, following Clausius, the entropy of the system . . . Since there exists in nature no process entirely free from friction or heat-conduction, all processes which actually take place in nature, if the second law be correct, are in reality irreversible. Reversible processes form only an ideal limiting case.

As a matter of fact, only abstract mathematical processes are repeatable and reversible. The number five is always numerically identical with the number five, and the process five times five is always numerically identical with itself. No physical process retains its numerical identity if repeated. The sunrise of yesterday will never recur as such. Thus Tennant's definition of science is almost the elimination of science.

(2) Tennant further declares that "science is not concerned with values."

> Science is not concerned with values, imports, significance, save such as constitute its own peculiar interests. (P. 344.) Science studies the world's structure and order, not its relation to human wishes and aspirations; it is not concerned with interpretation in terms of value, of final cause, of meaning, or of God. It does not find and assert the world to be meaningless or Godless, nor decry inquiry into such matters, as futile; it merely disavows interest in them, as none of its business. (P. 352.)

(3, 4) Science eliminates psychology and philosophy.

> Science is at liberty to make the rules of its own procedure, to define Objects and Facts as it pleases, to ignore whatever conditionings and factors it likes; but its rules will not be applicable to the different games of psychology and philosophy. (P. 338.)

(5) Science in a sense gets away from Actuality.

> . . . it may be remarked here that the statement, that 'science gets away from Actuality', made without qualification, is misleading. Science does so and does not; or to speak plainly, when it does, it is largely with the purpose and the result of returning enriched with insight into Actuality, even if some aspects thereof are ignored. (P. 352.)
>
> There is reason to believe that our specific senses are differentiated out of one. Speaking in terms of phenomenalism, the differentiation will not be in the ontal (*omega* Objects) but in our apparatus for apprehending. It has been controlled, of course, by our environment; hence there is antecedent probability that all sensa are equally relevant and revealing: that in them there are no "degrees of reality", i.e. different removes of phenomenality. (P. 357.)

Tennant quotes from William James' illustration[113] of the sculptor who carves a statue from a block of marble, and then comments

> Making a different use of James' imagery, we may remind ourselves that what science, as distinguished from individual experience, carves from, is not the hard rock of positive fact. (P. 349.)

In these quotations Tennant seems to abandon the noumenal, *omega* ontological world altogether, but this is not his true position.

(6) Science eliminates epistemology.

> We first meet with limitations, that are of philosophical moment, when science deliberately excludes from its field the pursuits known respectively as history and epistemology. Here are departments of possible knowledge that are not science, but are of highest import for philosophy. (P. 363.)

(7) Science is to be separated from theology.

> Neglect of science's limitations, has in the past been responsible for pseudo-science and pseudo-philosophy—even pseudo-theology . . . Today theology has no concern with doctrine of a double truth, as if what is true in its sphere could well be false in that of science; with a system of bookkeeping by double entry, with water tight compartments, or with mutual irrelevancy. (P. 361 f.)

We may well sympathize with Tennant's objections to a "doctrine of double truth," and "water tight compartments, or . . . mutual irrelevancy." We may also be amazed that Tennant does not know that he does not know the meaning of "double entry" bookkeeping, or that none of his friends pointed out this grotesque blunder between the first and second printings of the book.[114] This is no mere semantic slip. Ask any *accountant,* who knows the meaning of "double truth", if it could be illustrated by double entry bookkeeping, and watch his reaction!

Tennant's point here is to show that though theology and science are two separate fields, they are related across the boundary which separates them.

> Without servility, it [theology] would establish positive relationships with science. It would find the unifying bond, in Reason: the *differentia,* in diversity of operations on the same data. At least this is how theology is here conceived, whatever different estimations of its nature and attitude may obtain elsewhere. Hence theology's interest in science's limitations. Conscious of her own, she yet indulges the hope that

> her research may prove supplementary to that of delimited science. (P. 362.)

Of all the above delimitations, the most serious is not that between science and theology, but between science and history; for, as indicated above in the discussion of mysticism, the historical evidential approach is central for the Biblical nucleus of the Judeo-Christian tradition.

In his later writings, however, Tennant moves toward a correction of this weakness.

In his *Philosophy of the Sciences,* chapter IV, after a discussion of the Actual and the ontal,[115] he finally reaches the following position:

> . . . I would assign to history, on the objective side of knowledge, a position similar to that which I have assigned to the psychology of cognition on the predominantly subjective side of knowledge, viz. that of a first propaedeutic to philosophy and a first science in a systematic ordering of our departments of knowledge.[116]

However, Tennant slips back easily into his earlier position, especially when it comes to theological evidence. In his book on *The Nature of Belief* Tennant does give historical evidence a reasonable place, contrary to his position on this question in Volume I of his *magnum opus,* but when he comes to the discussion of historical Christian evidences he very inconsistently reverses what he has said on historical evidence in general.[117] He does the same thing in his development of Chapter IV, *The Relations of History and Dogmatic Theology to Each Other and to the Sciences,* and Chapter V, *The Relations of the Natural and the Pure Sciences to Each Other, and to Philosophy and Metaphysics* in his *Philosophy of the Sciences.* In the former chapter he defends history as a science, in the latter he destroys much of his defense of history as a science when it comes to applying the methods of the science of history to the study of historical Christianity. This feature of slipping back into non-historical science is more vague and indefinite in the *Philosophy of the Sciences* and more simple and clear in the *Nature of Belief.*

I have not discussed the psychological aspects of this chapter[118] of Tennant's on science. Sufficient on that point has been said in my chapter on Tennant's psychology.

Conspicuous by its absence is any reference to the actual methods of science. After the introductory sentence quoted above (p. 77) Tennant seems to forget method and dwell on abstraction. His empirical scientific method is not found in his sections on the theory of scientific knowledge, but rather in his psychology and in his metaphysics, Tennant's metaphysics being the subject of Chapter III of this thesis.

Conclusion, Tennant's Epistemology in General

In conclusion, it is obvious that the writer has not defended Tennant's epistemology as such. Rather an attempt has been made to give a critique of it in such a way as to expose its strengths and its weaknesses.

If the subject matter of epistemology be *produced in and by* the social process of inquiry, as Dewey holds, I suppose the descriptive analysis of any given system would be merely the presentation of a sociological phenomenon. It would be a matter of *"Das ist so,"* but what of it? Tennant's epistemology, evolving in his social milieu, is *thus* and *so,* but, as the slang expression is, *"so what?"*

However, if the basic forms of epistemology are *discovered,* not merely produced, in the relational categories, class I, Appendix B of this thesis,—if moreover these forms of this class of categories are ontological as well as epistemological,—ontological I mean in the sense that they integrate with and are usefully applicable to the categories of classes II and III,—in other words if epistemology, *Sosein,* is just as *true in its own right,* as ontology, *Dasein,* is *real in its own right,* then the study of any workable epistemology will reveal elements of truth which may be corrected of erroneous connections, and used in a better system.

As young girls, my wife and her sister, after reading a certain novel, fell to discussing whether "Graustark," was east or west of Istambul. Finally they asked the postmaster. He looked it up, and reported that "Graustark" has no post office. It is just a place in a book. Does epistemology have "a post office" of its own? Or is it just a social fiction?

Tennant's epistemology is not inerrant, but I believe it is *partly true.* As Admiral Byrd used existing maps,[119] partly correct or approximately correct, and partly far from the truth, in exploring the south polar continent, so Tennant's system of epistemology, in spite of its errors, contains, I think, elements of truth which may be used in constructing a better system.

If it is permissible to follow through with the illustration of map making, it might be suggested that before the discovery of the compass with its bi-polar direction, it was difficult for a map maker in a strange land to avoid a "wandering circle." The prevalent monistic philosophies might be held to be lost in a "wandering circle."

The greatest characteristic of Tennant's epistemology is his directional orientation. He starts with simple empirical data, *knowledge of so-called objects by so-called subjects.* He seldom deviates from this elementary integrated dualism. He has a sense of direction, a compass, of which educational philosophy may do well to make use.

APPENDIX B

Epistemological Categories, Suggested Outline

It may be in order at this point to suggest a tentative outline of epistemological categories as a supplement to the incomplete study developed by Tennant. Empiricism should produce a more complete epistemological scheme of categorical classification. It is suggested that epistemological categories be defined as *useful, general predicates of the mind in rapport with its postulated non-self.* The following outline may prove to be an aid to empirical thinking:

I. Abstract hypothetical relations.

Propositional. (Logic.) The mere empty possibility of relations and implications of *Sosein* in predicates, and *Dasein* in subjects.

Numerical. (The multiplication tables, arithmetic, and algebra.) The mere empty possibility of numerical relationships. (It should be noted that the first possibility of relationship in the propositional and the numerical categories is the same, namely the abstract possibility of identifying units.)

The relationship of whole and part is here included. It should be noted that, however modern mathematicians may use or abuse linguistic terms, the word "whole" as historically considered cannot be applied to an infinite concept. The very meaning of the word *infinite* forbids any logical application of it to a whole.

Dimensional. (Abstract geometry of abstract space.) The mere empty possibility of relationships in dimensions.

Sequential. (Abstract time.) The mere empty possibility of relationships in sequence.

Causal. (Dynamics.) The mere empty possibility of efficacy (other than implication) between units.

Ethical. (Ethics.) The mere empty possibility of right and good relationships, including such propositions as that if personal beings capable of bearing testimony should ever co-exist in a society, it would be wrong or evil for one to bear false witness against his neighbor.

Aesthetic. (Aesthetics.) The mere empty possibility of relationships of and with the beautiful.

II. Substantive entities.

Matter and/or force. Stuff with its so-called primary attributes of extension in space and time and its so-called secondary attributes such as color, pitch, etc.

Biological beings.

Personal beings. (Non-material minds and their activities.)

III. Relationships among substantive entities.

Propositional. (Applied logic.) Implication and inference in the process of inquiry.

Quantitative-Numerical. (Measurement, applied arithmetic and geometry.) It is conceivable that intelligences might have operated for a time with the category of quantity, more or less, without any conception of number or manipulation of units. The identification of units being a basic and fruitful concept for all thinking as we know it, and thus probably a fundamental of all thought, it is conceivable that intelligences might have halted for a time on the plane, "One plus one equals more." Thus the category of quantity is hypothetically distinguishable from that of number, when relationships between substantive entities are being considered.

Note that in the applied propositional and numerical categories there is only approximate relevance of propositional and numerical terms to substantive entities, the former being arbitrarily fixed by definitions for the purposes of propositional or numerical manipulation, the latter being in a process of continuous change.

Dimensional. (The geometry of Lobachewsky.) The measured optical space of relativity.

Sequential. (The time of Einstein.) Time as considered in relativity.

Causal. (Efficient cause.) Interactionism, or if it please Dewey and Bentley, transactionism.[120]

Ethical. (Applied ethics.) The right and good conceived in relationship to actual goals and circumstances.

Aesthetic. (Applied aesthetics.) Beauty as relationship of and between substantitive entities.

Summary of Epistemological Categories

I. Abstract hypothetical relations
  1. Propositional
  2. Numerical
  3. Dimensional
  4. Sequential
  5. Causal
  6. Ethical
  7. Aesthetic

II. Substantive entities
  1. Matter and/or force
  2. Biological beings
  3. Personal beings.

III. Relationships among substantive entities
  1. Propositional
  2. Quantitative-numerical
  3. Dimensional
  4. Sequential
  5. Causal
  6. Ethical
  7. Aesthetic

It should be pointed out that all of the above categories may be subsumed under two headings, *Dasein* and *Sosein.*

1—John S. Brubacher, *Modern Philosophies of Education,* McGraw-Hill, 1939.

2—Daniel Sommer Robinson, Director of the School of Philosophy, University of Southern California, *The Principles of Reasoning, An Introduction to Logic and Scientific Method,* D. Appleton-Century, 1947.

3—A pip is "a flickering patch of light" which a radar operator knows how to interpret.

4—I once made the mistake of stating, without looking it up, that epistemology is derived from *pisteuo,* or *pistis.* My good friend, Dr. Gordon Clark, then my colleague, now Professor of Philosophy in Butler University, an excellent classical scholar, very kindly corrected me. *Pistis,* from a different root, and signifying faith or belief, is a distinctly different concept from understanding (over-standing), *episteme.*

5—Tennant's appendix note (Op. cit. pp. 386-402) on the subject of Causality is an excellent example of close discursive reasoning. It includes detailed discussion of (1) Efficient Action, (2) The Causal Principle ("every effect has a cause"), (3) Substitutes for Efficient Proximate Cause, (4) The Causal Law ("like causes produce like effects"), (5) Substitutes for Efficient Cause and (6) Substance-Cause.

Similarly his appendix notes (op. cit. pp. 403-418) covering the topics *A Priori,* Necessary, Self-Evident, Contingent, Possible, The Principle of Uniformity, and Uniformity of Nature, are of great interest and value.

6—Aristotle's Organon, Volume I, *The Categories,* Introduction by Harold P. Cooke, p. 6, the Loeb Classical Library Series, Harvard University Press.

7—Ibid., p. 7.

8—Ibid., p. 2.

9—Richard McKeon, Editor, *The Basic Works of Aristotle,* Random House, 1941, p. 8.

10—Op. cit., p. 17 f.

11—Kant (*Kritik der reinen Vernunft,* Book II, Ch. III, Sec. IV) laboriously argues that in logic "*Sein ist offenbar kein reales Prädicat. . . . Im logischen Gebrauch ist es lediglich die Copula eines Urtheils.*"

("The verb 'to be' is often no real predicate . . . in logical usage it is purely the copula of a judgment.")

12—The following correspondence throws light, upon the problem:

March two, 1948

Sir W. David Ross, Provost of Ariel College
Oxford, England

My dear Professor Ross: I took the liberty some time ago of putting the following question to Dean Glenn R. Morrow of the University of Pennsylvania. In his reply he points out that in your edition of the *Metaphysics* you accent *pou* as indefinite, but that the tradition seems to be to accent it with a circumflex. Dean Morrow suggests that I send my question to you, and I shall greatly appreciate it if you find it convenient to give me some light upon the matter. The question as I put it to Dean Morrow is as follows:

"Why is *pou* accented with a circumflex as an interrogative adverb in Aristotle's *Categories*, Chapters IV and V in the Loeb Edition? Why is it not an indefinite adverb? The latter would fit with the entire context, particularly the indefinite *pote*." Very sincerely yours, (Sgd.) J. Oliver Buswell, Jr.

17 Bradmore Road
Telephone: Oxford 2864

Dear Sir In reply to your letter of Mar 2nd, I think that the Loeb editors accented *pou* with a circumflex because they thought that as the name of a category it needed more emphasis than it would have without an accent. But in my opinion they made a mistake; they ought to have accented it with an acute accent, to distinguish it from an interrogative *pou*.

Their practice is not uncommon. They have in fact taken it over from a standard edition, that of Bekker. But that does not make it right. Yours sincerely (Sgd.) W. D. Ross.

13—"Hellenistic" is used to designate the culture and literature of Greek-speaking Hebrews, as distinguished from the Greeks.

14—James Orr, *The Christian View of God and the World*, Scribner, Third Edition, 1897, p. 427, footnote.

15—P. W. Bridgman, *The Logic of Modern Physics*, Macmillan, 1927, reprint of June 1946, p. 4.

16—Op. cit., p. 171.

17—Immanuel Kant, *Critique of Pure Reason*, J. M. D. Meiklejohn, Translator, Bohn edition, 1860, p. 64.

18—Tennant uses "certainty" in the sense of objective truth regardless of opinions. "Certitude" is his term for psychological confidence. He says, " 'Certitude' and 'certainty' are terms commonly treated as synonyms, which spoils their usefulness. Here 'certitude' shall be appropriated to state of mind, the convincedness such as is affirmed in 'I am certain that...'; and 'certainty' shall be reserved for the Objective character ascribed to propositions independently of whether they are believed, as in 'it is certain that . . .' " Op. cit., p. 290, footnote.

19—Ibid., p. 177.

20—Ibid., p. 177.

21—Ibid., p. 178.

22—Ibid., p. 179.

23—I use the word "stuff", as I believe Tennant intended, simply to designate inert space-occupying entities or materials. Tennant leans strongly to vitalism, or hylozoism.

24—This section is included in the present investigation in order to afford a background for the evaluation of Tennant's view.

25—See pp. 28 and 30 above.

26—F. R. Tennant, *Philosophical Theology,* Volume II, Cambridge University Press, 1935, p. 181.

27—Ibid., p. 182.

28—Ibid., p. 182.

29—This differs from Dewey's instrumentalism in that in the latter system *acts* of thinking are "instruments" of action.

30—Op. cit., p. 183.

31—For a suggested outline of epistemological categories, see Appendix B at the end of this chapter.

32—Op. cit., p. 183.

33—Not in the sense of Dewey's experimentalism, for Tennant believes that thought leads to positive knowledge of permanent ontological objects by perduring subjects.

34—Op. cit., p. 185.

35—Op. cit., p. 188.

36—Op. cit., pp. 188-192.

37—Op. cit., p. 193.

38—Op. cit., p. 189.

39—As opposed to Dewey, Tennant holds that both the *acceptance* of such laws as that of contradiction, and the following, or application and use, of such laws, are "coercive." Peirce, contrary to Dewey, held that logical laws are valid *a priori* but contrary to Tennant, he held that the acceptance and following of these laws is a matter of faith. See his sentence, "This is the faith of the logicians" (*Collected Papers,* Vol. III, paragraph 161, p. 106) quoted in its context and discussed more fully below in my chapter on Dewey's epistemology.

40—Op. cit., pp. 195-218.

41—Tennant's discussion of rationalism includes a valuable historical analysis of different types of rationalism from Descartes and Leibnitz through Wolff, Kant, Hegel, to the present time.

42—Op. cit., p. 194.

43—It is interesting that D. S. Robinson in his *Principles of Reasoning* (op. cit., third edition, p. 365f) takes the position of Leibnitz, formulating the latter's principle as follows: "No fact can be found real or existing, no statement true, unless there be a sufficient reason why it should be so and not otherwise." Robinson in true rationalistic fashion regards the universe as a system not only of causal interacting reality, rationally intelligible, but as a system of *implication.*

44—Op. cit., p. 206.

45—Psychological certainty, assurance, and moral certainty, confidence, or faith, are not here under discussion. See reference to Peirce, footnote p. 39, and quotation from Tennant in footnote 18 above.

46—Op. cit. pp. 215-218.

47—Op. cit., p. 215.

48—Ibid., p. 219.

49—Ibid., p. 219.

50—Adapted from Köhler's chapter on *Gestalt* psychology in *Psychologies of 1930*, op. cit., p. 143. Köhler changes the sense of "belonging together" by changing the figure on the following page, partly sketching in the enclosure of the space between the wide apart lines. It seems to me that the illustration for philosophical purposes is more striking if the "belonging together" is changed merely by the suggestion of an interpretative concept, the lines themselves remaining exactly the same.

51—F. R. Tennant, *Philosophical Theology*, Vol. I., Cambridge University Press, 1935, p. 223.

52—Rupert C. Lodge of the University of Manitoba in his *Philosophy of Education* (Second edition, Harper, 1947) constantly describes realism as though it were nothing but materialism. Only once, I think, (p. 2) does he limit his term to "physical" realism. He gives the impression that realism *is* materialism. This is a definition against which, I think, most realists would protest. To quote from my recent review, *The Bible Today*, Vol. XLI, No. 9, p. 278.

"Professor Lodge quite fairly and reasonably presents the views with which he disagrees, with the exception that some of us dualistic realists feel that he has really described materialism and should have used that term in place of Realism. Charles Hodge in his Systematic Theology (Scribner's, 1871, Vol. II, p. 46) says

Realistic Dualism

"The Scriptural Doctrine of the nature of man as a created spirit in vital union with an organized body, consisting, therefore, of two, and only two, distinct elements or substances, matter and mind, is one of great importance. It is intimately connected with some of the most important doctrines of the Bible; with the constitution of the person of Christ, and consequently with the nature of his redeeming work and of his relation to the children of men; with the doctrine of the fall, original sin, and of regeneration; and with the doctrines of a future state and of the resurrection. It is because of this connection, and not because of its interest as a question in psychology, that the true idea of man demands the careful investigation of the theologian.

"The doctrine above stated, as the doctrine of the Scriptures and of the Church, is properly designated as realistic dualism. That is, it asserts the existence of two distinct *res*, entities, or substances; the one extended, tangible, and divisible, the object of the senses; the other unextended and indivisible, the thinking, feeling, and willing subject in man. This doctrine stands opposed to materialism and idealism, which although antagonistic system in other respects, agree in denying any dualism of substance. The one makes the mind a function of the body; the other makes the body a form of the mind. But, according to the Scriptures and all sound philosophy, neither is the body, as Delitzsch says, (Biblische Psychologie, p. 64) a precipitate of the mind, nor is the mind a sublimate of matter."

Lodge does not seem to be conscious of this type of Realism, but if one recognizes the fact that by Realism, he means Materialism, one finds his treatment quite fair and illuminating.

53—See discussion above, p. 13 and p. 14, note 3.

54—Op. cit., p. 421ff, Vol. II.

55—Op. cit., p. 223.

56—Op. cit., p. 224.

57—Op. cit., pp. 224-226. Tennant thinks that concepts are "constructed by" minds *and omega* Objects in *rapport.*

58—In a letter to the writer dated December 4, 1945, Brightman said, "I fear that I am an incurable and ultimate epistemological dualist, ... But epistemological dualism within God does not imply any metaphysical dualism in his nature..."

59—A not too profound attempt to maintain epistemological dualism and physical or spiritual monism, is found in the article entitled "Human Minds and Physical Objects" by John R. Roberts of Brunswick, Maine, in the *Journal of Philosophy* for July 31, 1947.

60—Op. cit., p. 226f.

61—The peculiar type of realism which Tennant (p. 231 f. with no definite reference) quotes Broad as naming "the instrumental theory," seems to be the same as the plate-glass view quoted above. It is said to be the view that the sense organs are instruments for a perfectly "diaphanous apprehension of the Real." This "instrumental" view is certainly not Dewey's instrumentalism. It does not seem worthwhile to search for it in Broad's writings. It may have been only a hypothetical view which Broad set up for purposes of argument. Certainly it has produced no important literature in the history of realism.

62—This causal theory in its second implication would seem to include an "instrumental" view in the only proper use of the word. Who ever heard of an instrument, even plate glass, which does not in some way *condition* that of which, or for which, it is instrumental?

63—Professor Nagel does the same thing in his chapter on "Logic Without Ontology" in *Naturalism and the Human Spirit,* op. cit., pp. 212ff.

64—He does have a strange idea of functional neurology. He thinks that all differentiation of physical stimulus is obliterated in the nerve fibre; "diversity of stimulation is apparently annulled." He then brings up gratuitously a wholly unnecessary problem, how "the brain reintroduces diversity."

65—Joseph Butler, *The Analogy of Religion to the Constitution and Course of Nature,* first published 1738, Part I, Chapter I, Section II. In the edition published by Lippincott in 1886, edited by Howard Malcolm, p. 86 f., the editor in a footnote quotes from Cicero as follows:

> It may easily be perceived that the *mind* both sees and hears, and not those parts which are, so to speak, windows of the mind. Neither are we bodies; nor do I, while speaking this to thee, speak

> to thy body. Whatever is done by thy mind, is done by thee. (Cicero, Tusc Disput. I, 20, 46 and 22, 52.)
>
> The mind of each man is the man; not that figure which may be pointed out with the finger. (Çic., de Rep. b. 6, s, 24.)

He also quotes a small part of the following interesting section from Plato's Alcibiades I:

> Socrates. I will explain; the shoemaker, for example, uses a square tool, and a circular tool, and other tools for cutting?
>
> Alcibiades. Yes.
>
> Soc. But the tool is not the same as the cutter and user of the tool?
>
> Al. Of course not.
>
> Soc. And in the same way the instrument of the harper is to be distinguished from the harper himself?
>
> Al. It is.
>
> Soc. Now the question which I asked was whether you conceive the user to be always different from that which he uses?
>
> Al. I do.
>
> Soc. Then what shall we say of the shoemaker? Does he cut with his tools only or with his hands?
>
> Al. With his hands as well.
>
> Soc. He uses his hands too?
>
> Al. Yes.
>
> Soc. And does he use his eyes in cutting leather?
>
> Al. He does.
>
> Soc. And we admit that the user is not the same with the things which he uses?
>
> Al. Yes.
>
> Soc. Then the shoemaker and the harper are to be distinguished from the hands and feet which they use?
>
> Al. Clearly.
>
> Soc. And does not a man use the whole body?
>
> Al. Certainly.
>
> Soc. And that which uses is different from that which is used?
>
> Al. True.
>
> Soc. Then a man is not the same as his own body?
>
> Al. That is the inference.
>
> Soc. What is he, then?
>
> Al. I cannot say.
>
> Soc. Nay, you can say that he is the user of the body.
>
> Al. Yes.
>
> Soc. And the user of the body is the soul?
>
> Al. Yes, the soul.
>
> Soc. And the soul rules?
>
> Al. Yes.
>
> Soc. Let me make an assertion which will, I think, be universally admitted.
>
> Al. What is it?

Soc. That man is one of three things.

Al. What are they?

Soc. Soul, body, or both together forming a whole.

Al. Certainly.

Soc. But did we not say that the actual ruling principle of the body is man?

Al. Yes, we did.

Soc. And does the body rule over itself?

Al. Certainly not.

Soc. It is subject, as we were saying?

Al. Yes.

Soc. Then that is not the principle which we are seeking?

Al. It would seem not.

body, and consequently that this is man?

Al. Very likely.

Soc. The most unlikely of all things; for if one of the members is subject, the two united cannot possibly rule.

Al. True.

Soc. But since neither the body, nor the union of the two, is man, either man has no real existence, or the soul is man?

Al. Just so.

Soc. Is anything more required to prove that the soul is man?

Al. Certainly not; the proof is, I think, quite sufficient. (Jowett translation, Random House edition. Vol. II, pp. 764ff.)

66—This opinion, here related to realism, has already been suggested in discussing the categories and will be mentioned in the concluding paragraph on phenomenalism.

67—It may be seriously questioned whether Tennant's rather complicated and not perfectly consistent system of letter symbols either adds to the clarity of his philosophy, or economizes the expression thereof. This remark is not a criticism of the use of symbols, as in symbolic logic, where most certainly precision and economy of expression are achieved. It does seems that in Tennant's case his philosophy would be far more readable and comprehensible if he had expressed himself even paraphrastically, in plain English words.

68—I realize that the etymology of the word "integrate" does not justify my interpretation, but I am convinced that common English usage does justify it. On the analogy of the Greek word used by St. Paul (Romans 8:28), "All things work together for good to them that love God," the formation of a word like "synergation" might be suggested. Unfortunately, however, the well established English word "synergism" has a definitely unfavorable connotation in the history of theology. I believe *integration* conveys the intended impression to English-speaking readers, in spite of its etymology.

69—Op. cit., p. 233.

70—Op. cit., Vol. II, p. 288.

71—Op. cit., Chapter XI, pp. 257-305.

72—Op. cit., p. 273.

73—He gives the following bibliographical footnote, "See *Logic* by W. E. Johnson, especially Part II; Dr. Broad in *Mind*, N. S. Nos. 108 and 113; *A Treatise on Probability*, by J. M. Keynes."

74—Op. cit., p. 262f.

75—From the point of view of dualistic material realism, it is recognized that the mechanical uniformity of physical nature is only probable, but this probability is held to be extremely high, and spontaneity analogous to free will is held to be extremely improbable in the material or physical world.

76—It would be quite possible to harmonize Jevons' three steps with Dewey's five steps, which will be discussed in Part II of this thesis.

77—Op. cit., p. 277f.

78—Joseph Butler, *The Analogy of Religion to the Constitution and Course of Nature*, first published 1738, Howard Malcolm, Editor, p. 67.

79—Ibid., p. 67.

80—Edwin A. Burtt, Editor, *The English Philosophers from Bacon to Mill*. Modern Library, Random House, 1939, p. 387. Locke's *Essay* was published in 1690.

81—Butler here says in a footnote: "The story is told by Mr. Locke in the Chapter of Probability." This is the chapter to which reference has been made above. Locke's words are: "As it happened to a Dutch ambassador, who entertaining the king of Siam with the particularities of Holland, which he was inquisitive after, amongst other things told him, that the water in his country would sometimes, in cold weather, be so hard, that men walked upon it, and that it would bear an elephant if he were there. To which the king replied, 'Hitherto I have believed the strange things you have told me, because I look upon you as a sober fair man, but now I am sure you lie.' " (Op. cit., p. 379f).

82—Op. cit., p. 68. Butler's argument as to the moral and probationary value of probability and uncertainty is set forth in Chapter VI of Part II of his *Analogy*. His point is not that probability *as such* is to be *followed*, but that even remote probabilities relating to life, death, and destiny ought to be carefully examined. A man who must leave a sinking ship ought to examine all possibilities to which any degree of probability seems to be attached. Similarly, if there is the slightest possibility amounting to any degree of probability that the Christian gospel is true, men are under moral obligation to examine its claims for what they may prove to be worth. This brief summary of Butler's view is given because the oft quoted phrase, "Probability is the guide of life", does not mean what one might infer without knowledge of its context.

83—Circularity as referred to by Tennant is not essentially different from circularity defended by Dewey and Bentley. See *Journal of Philosophy*, for April 26, 1945, Vol. XLII, No. 9, p. 338, and for July 31, 1947, Vol. XLIV, No. 16, p. 424. It might be pointed out, however, that reciprocal reference in an on-going cosmic process, which is strictly what Tennant and Dewey and Bentley describe, is not really circularity in the usual sense. Circularity in reasoning is a term usually reserved for the formal relations of propositions.

84—The word "cognitively" is used to indicate an important distinction between limited epistemological belief, and that use of the word found prominently in Biblical and theological writings. In the latter use, belief includes cognitive belief, but goes far beyond cognition into the realm of moral and spiritual volition and action. Pisteology (from *pistis*) as distinguished from epistemology, is that branch of theology which treats of belief in the latter sense. In pisteology, belief is held to be a cognitive and ethical and spiritual reaction, brought about in the individual by the Spirit of God, the result being far beyond the merely cognitive, and thus, not a matter of probability, but of *certitude.* See my article "The Ethics of 'Believe' in the Fourth Gospel" in the *Bibliotheca Sacra* for January 1923, Vol. LXXX, No. 317.

85—Op. cit., p. 300, quoted from Huxley's *Life and Letters,* III, p. 163.

86—Op. cit., p. 379.

87—Part II, Chapter VI, op. cit., p. 253.

88—Peirce's theory of probability and Professor Sidney Hook's reference to Peirce's views, will be summarized in Chapter III.

89—A. T. Robertson, *A Grammar of New Testament in the Light of Historical Research,* Doran, 4th ed. 1923. Herbert Weir Smyth, *A Greek Grammar for Colleges,* American Book Company, 1920. Charles Burton Gulick, and William Watson Goodwin, *Greek Grammar,* Ginn and Company, 1930. James Hope Moulton, *A Grammar of New Testament Greek,* Volume I, 3rd Edition, T. & T. Clark, 1908.

90—It is not the Christian faith as a distinctive body of doctrine, but the *nature* of Christian faith as such, which is discussed in the eleventh chapter of the Epistle to the Hebrews. A very clear example of the use *with* the article, is found in Romans 12:6 *kata ten analogian tes pisteos,* where "the analogy of the faith" refers not to the *nature* of faith as such, but to a specific system of faith.

91—The writer has not the slightest prejudice against an analogy being drawn between faith as presented in the Biblical tradition and faith in general. The criticism is directed solely against Tennant's workmanship as an exegete.

92—See the article "Dispersion" in Hastings' *Dictionary of the Apostolic Church,* Vol. I. (Scribner's 1916.)

93—In Systematic Theology we generally apply the word "pisteology" to the doctrine of faith, the word being derived from *pisteuo,* the verb "to believe", or *pistis* "faith." From the philosophical point of view, pisteology may be regarded as a branch of epistemology, the etymology of which has been discussed above.

94—*Philosophical Theology I,* p. 298, and *The Nature of Belief,* p. 71.

95—*Philosophical Theology I,* pp. 306-332.

96—George Mervin Alleman's University of Pennsylvania Ph.D.

thesis entitled *A Critique of Some Philosophical Aspects of the Mysticism of Jacob Boehme*, Philadelphia, 1932, is a valuable study in this field.

97—Here as elsewhere in Tennant and in Peirce, *ps* stands for psychological in the more or less scientific sense, as over against *psi*, the psychic, used non-critically.

98—Numinous and numinal are from the Latin numen, "a nod of the head", then "the divine will or power," then "divinity." These terms should not be confused with noumenal, from the present passive participle of *noeo*, "to know," "the things known," then in Kant, the "things in themselves," which knowledge cannot directly reach.

99—W. M. Ramsay, *Pauline and Other Studies*, Hodder and Stoughton, Lecture V, pp. 124-159. The book is not dated, but this lecture was written at Ephesus in Asia Minor in the Spring of 1905. (P. 140, Note 2.) The words "Professor of Humanity" are found on the title page.

100—After reading a rough copy of the following pages, Prof. Bertocci very kindly wrote me. His letter, dated February 10, 1948, reads in part as follows:

> I think that the mistake you make about me all the time (in what I see before me) is that you overlook that my main concern is (with Tennant) to include the evidence from value experience (and rel. experience is *one* aspect of that, along with the moral and the aesthetic) as well as sense-data (which seems to be the exclusive concern of the naturalist, at the expense of value considerations). Just as more than one view of the exact nature and evidential value of moral experience is possible, so is more than one view of rel. exp. possible. In my book, I side against Sorley's view of value and move closer to Tennant, though wanting to keep uniqueness of moral experience with Sorley. In other words, what you consider a shift in my position is not really a shift from not favoring rel. exp. to favoring it; the main point all the way along is that in the relation of moral, epistemological, scientific, and general cosmological considerations, as presented in the wider teleological argument, one finds the strongest argument for God. Neither Tennant nor I are sense-bound empiricists, for we would want to insist that the evidence from value experience always be considered. In the evaluation of the rel. exp. of God we may differ from others, but we would consider it unphilosophical to disregard it without more careful investigation. The gauntlet Tennant throws at the feet of one group is: Investigate before you deny: To the other he says: Investigate before you assert more than you can defend by reference to the variety, etc., present in the rel. exp. [End of quotation]

Since it is still not clear to me that Professor Bertocci has not unconsciously shifted his position, I have not revised my material; but since Bertocci's work is basic for all students of Tennant, I give this part of his letter to show that he does not endorse my analysis of his views.

101—Peter Anthony Bertocci, *The Empirical Argument for God in Late British Thought,* Harvard University Press, 1938. See especially pages 221 to 227.

102—*The Journal of Philosophy,* January 31, 1946, Vol. XLIII, No. 3, p. 71.

103—Vol. XLVI, No. 1, January 1947.

104—See Bertocci op. cit. pp. 214, 242, and especially 255.

105—I take numerical identity to be Bertocci's meaning. In his letter of February 10, 1948, above cited, Bertocci furthers says

> I certainly distinguish between the phenomenal chair and the energizing of God which constitutes the noumenal world and object. The world as human beings experience it and as God experiences it are two different, though related, things.

But we are still left with phenomena for God and phenomena for us as just two aspects of God's will, with no created noumena *selbständig.*

106—*Journal of Philosophy,* December 18, 1947, Vol. XLIV, No. 26, pp. 710-715.

107—Delton Lewis Scudder, Ph. D., *Tennant's Philosophical Theology,* Yale University Press, 1940.

108—This, of course, is pantheism, not theism.

109—The New Testament attitude on this point is most clearly expressed in the First Epistle of John (I John 4:1-3).

110—*Philosophical Theology,* Volume I, p. 333.

111—His knowledge of physics will appear in the discussion of his Metaphysics, as set forth in Volume II of his *Philosophical Theology.*

112—*Thermodynamics,* by Dr. Max Planck, Professor of theoretical physics in the University of Berlin, third edition (Eng.) translated from the seventh German edition, Dover publications, 1945, p. 88.

113—*Principles of Psychology,* Vol. I, p. 288 f.

114—Double entry bookkeeping, requiring that each transaction item shall be entered in appropriate left-hand and right-hand columns, is one of the most effective devices for accuracy in the entire history of commercial accounting. Philosophically it may be compared with the recognition that each event stands related to its causes and its effects, or (from the rationalistic point of view) to its premises and its implications. There is, indeed, an interesting analogy between *debit,* "He owes", and *credit,* "He trusts", and both the causal and the implicative chains.

115—I have prepared a detailed list of references and quotations showing the development of Tennant's thought in the *Philosophy of the Sciences* from the position taken in the *Philosophical Theology* to the position outlined above, but I believe the presentation of this material would be too cumbersome. It is not necessary to show the path which he followed in order to make it plain that he has taken a different position. Even in Volume II of his *Philosophical Theology,* with no apparent consciousness that he has begun to shift ground, one finds two (and only two, I think) brief passages illustrative of his later usage: ". . . historical and other sciences" (p. 28), ". . . the historical method is the scientific method." (p. 238).

116—*Philosophy of the Sciences,* p. 95.

117—*The Nature of Belief,* pp. 90-101.

118—Chapter V of *Philosophy of the Sciences.*

119—See *The National Geographic Magazine,* October 1947, Vol. XCII, No. 4, article by Rear Admiral Richard E. Byrd, "Our Navy Explores Antarctica".

120—The insistence of Dewey and Bentley on the preposition *trans* rather than *inter* is, they say, based upon their desire to avoid the "dualistic" suggestion of a "gulf" separating the entities which act upon one another. It should be pointed out that the preposition *trans* is far more suggestive of a gulf which may or may not be bridged, a bargain which may or may not be reached. *Inter* suggests contiguity and continuity. To an interactionist-dualist, the whole process of endeavoring to maintain movement without clear cut ontological distinctions, is just amusing gymnastics. Unless the world of nature is to be an undifferentiated blob, in which motion would be undistinguishable from station, there must be distinguishable entities acting in and upon one another. Only *others* can interact or transact. Heterogeneity is always an indissoluble element in any genuine concept of coherence or integration. See "Comments and Criticism", summary arguments *pro* and *con* on the recent series of articles by Dewey and Bentley, by Sholom J. Kahn and Benjamin Wolstein, in *The Journal of Philosophy* for November 20, 1947, Vol. XLIV, No. 24.

CHAPTER III

TENNANT'S METAPHYSICAL CONCLUSIONS

Tennant's metaphysical[1] views are elaborately set forth in Volume II of his *Philosophical Theology* entitled "The World, The Soul and God," published in 1930. Chapters V and VI of his *Philosophy of the Sciences,* a volume containing the Tarner Lectures for 1931-1932, set forth these views in briefer summary form. The titles of these two chapters are, "The Relation of the Natural and the Pure Sciences to Each Other and to Philosophy and Metaphysics," and "The Relation of Theology to Other Departments of Knowledge." For purposes of this study it will be advantageous to begin with these summary chapters of the later work and then to take up the investigation of the earlier and larger work, Volume II of the *Philosophical Theology,* after the generalities of Tennant's metaphysical views have been surveyed.

Tennant's Metaphysics, General Statement

Tennant states[2] that the purpose of Lecture V in his *Philosophy of the Sciences* is, "to discuss . . . the relation in which the natural sciences, regarded collectively rather than individually, stand to metaphysics."

On the general relationship between science and metaphysics Tennant says

> . . . metaphysics is wont to be most vehemently scorned by those whose mentality is most deeply steeped in unsuspected metaphysics, and who are unconscious that they are talking metaphysics of their own while railing at the metaphysics of professionals. One needs to be a philosopher of some standing in order *not* to be a metaphysician.[3]

Although the bulk of the introductory pages to this chapter are taken up with the summary of Tennant's "phenomenalism," which has been discussed above in Chapter II, he reviews his metaphysical views in the process of his epistemological discussion. Of conceptual objects he says

> These objects, then, are not to be taken for items of ultimate reality. Yet I would insist they must be some version or function of the real, else the science which uses them as indispensable standardized constants would hardly be consistent and valid, or even forthcoming.[4]

This amounts to an assumption that consistency is a criterion of ontological reality. Science finds "standardized constants" which are "consistent," and finds them "indispensable." These "constants" are evidently to be held "valid" because they are both "forthcoming" and "consistent."

Tennant holds that he has thus far led to "two main conclusions"

> (1) that, in the facts from which science sets out as if they were of bedrock nature, there is already an element of suppositional and rationalising venture, which is justified only by its pragmatic success and
>
> (2) that the forthcomingness of physical science involves that distinction between the ontal and the phenomenal—not between two worlds, but between the real or ontal world, and its appearance to our minds—which other theories of knowledge would, in different ways, dispense with . . .
>
> Science . . . [is] a (phenomenal) version of truth about the ontal . . .[5]

In these remarks we observe the same dualism which was pointed out in Chapter II on Tennant's epistemology. It is seen to be a metaphysical as well as an epistemological dualism. The latter dualism (adhered to by Brightman) distinguishes inter-acting subjects and objects of thought. Metaphysical dualism distinguishes thought from ontologically existing things.

On the one hand, Tennant rejects the notion which takes physics to be ontology.[6] He quotes Sir James Jeans as declaring that ". . . the outstanding achievement of the physics of the twentieth century is not the theory of relativity, or the theory of *quanta,* or the dissection of the atom, but the disclosure that science has not reached ultimate reality."[7] On the other hand, Tennant rejects the notion that "the mathematical symbol" is in itself ontal. He says

> When Sir James Jeans goes on to say that Nature is written in mathematical language, implying that Nature is pure thought, he would seem to be propounding a doctrine which is further from the truth than scientific realism[8] is.[9]

Tennant argues

> Science presupposes an ontal order—she has never been idealistic—and an order which has a structure enabling reason to find rationality in the phenomenal; but as to the nature of the ontal, science is agnostic.[10]

As to the nature of the material world, Tennant holds that, "not a single item of genuinely scientific knowledge would need to be disputed if the real world were proved to be purely spiritual and primarily a realm of ends."[11]

Under the heading "Diversity of Natural Sciences"[12] Tennant introduces an important discussion of the relations of the sciences to ontology. Mathematics, he holds,

> accounts the whole of actuality, and the totality of its qualities, as negligible for its own peculiar purpose; it makes a complete abstraction of quantity, and accordingly establishes the most perfect identification—the equation—that is compatible with mathematics stopping short of being one vast tautology.

It is difficult to see how, on this view, mathematics does "stop short." By definition, pure mathematical equations are necessarily tautological.

Physics adds to mathematics one of the "real" categories, namely, "movability." Unlike number, movability implies that "something or other . . . has substantial or real existence, as contrasted with ideal existence . . ." Chemistry adds another "real" category, "qualitative diversity of its elements." Biology and history add the categories of "quality" and "value" and more or less neglect the category of "quantity," says Tennant.

> Thus, while logic and mathematics require only the 'formal' categories, such as likeness and difference, numerical oneness and plurality or otherness, the science of motion involves the notion of substance, or of a continuant identity, such as cannot be immediately read off, like difference, from percepts. The other physical sciences need another 'real' or 'dynamic' category, viz. cause, if indeed cause and substance are not mutually implicative, or one and the same category, in so far as they represent anything actual.[13]

Whereas the ideal of certain types of science and philosophy is "reducibility to identity or equality,"[14] the category of causality and the other "real" categories implying diversity of the actual world, bring in an element of "irrationality."[15] The word nonrationality would express Tennant's meaning more precisely.[16]

If science is to become deductive, says Tennant, "it is requisite that *causa* be identical with *ratio*." But as a matter of fact, he goes on, cause is not the same as logical ground.

> Newton's laws on which Kant's *a priori* physics was based are now recognized to be conventional definitions in a conceptual scheme or a pure science, suggested by empirical facts. . . . physical science is not *a priori* and deductive knowledge . . . its premises are not eternal verities independent both of actuality as known and the knowers of it.[17]

The axioms on which the physical sciences are supposed to rest are

> not conventional definitions like those of the pure sciences, they are empirical generalizations, familiar enough to be mistaken for *a priori* truths.[18]

Tennant's analysis of the ontological assumptions implicit in the various sciences is very convincing against all forms of rationalism, rationalism being defined as any philosophy which holds that *ratio est causa essendi.*

However, his definition of cause seems ontologically defective. Like many other writers he holds that cause is by definition "actual *conditio sine qua non.*"[19] In Chapter II, contrary to Hume, I have held that the epistemological category of causality is doubtless derived from the experience of conation, putting forth effort.

Similarly in ontology the postulation of ontological cause is distinctly different from the postulation of *conditio sine qua non.* It may, e. g., be argued that inertia as defined by Newton is a condition without which no motion of a material body ever actually takes place. Yet it could hardly be held that this *conditio sine qua non* is in any sense the cause of motion. Even though matter and energy are now considered by many physicists as interconvertible in a manner indicated by the equation, $m = E/c^2$, the interconvertibility does not eliminate the ontological category of energy. The concept of causality seems to imply energy or effective action. Causality is an ontological postulate, an ontological category within which it is held that things not only exist, not only have diverse attributes, but things ontologically act upon things.

Tennant concludes his chapter on the relations of the sciences to metaphysics with an interesting analysis of two types of logic as related to ontology. Aristotelian logic he holds to be an

> amalgamation of knowledge [including a] confusion of the intentional point of view (from which S is P means that P is included among the attributes constituting S) with an extensional point of view (from which S is P means that S belongs to a class characterized by P).[20]

He holds that it is the inexact impure logic of intention in the Aristotelian system which has been superseded by algorithmic or symbolic logic. Nevertheless, it is the intentional element in Aristotelian logic which has been most useful in the progress of the sciences.

> Thus artificial classifications are generally useless to science whereas natural classifications ultimately based on the coherence of attributes, are fruitful.[21]

Tennant shows that

> The extentional logic which has been developed into logistics or symbolic logic loses in relevance to scientific reasoning and research in proportion to its gain in clearness and exactness.[22]

Recognizing the ontological affiliations of Aristotle's logic, it is difficult to follow Tennant in his final step:

> An equation is not an identity. That 7 and 5 are 7 and 5,

> is an identity; that 7 + 5 = 12, is an assertion of partial identity, equality or equivalence, between the diverse.[23]

Tennant reaches this conclusion[24] by the argument that "numbers are originally got by abstraction from things, and . . . in the higher stages of mathematical reasoning, ideal experimenting is the form often taken by the constructive mental activity."[25]

In the non-mathematical sciences, Tennant holds that the process of abstraction is partial. Chemistry, for example, neglects many properties when it makes certain statements in regard to chemical reactions. However, in the physical sciences properties neglected or abandoned by process of abstraction, may sometimes prove to have been important, and must be taken on board again in a later stage of the scientific process. In mathematics, however, Tennant argues, the process of abstraction has gone much farther and, although he still holds that "7 + 5 = 12" is not a statement of identity, the process of abstraction has gone so far that "neglect of properties is no cause of error. Having relegated the concrete to a distance at its first step, mathematics has no need to reintroduce it. Hence its easy and certain procedure, and its prestige in respect of rationality."[26]

As indicated above in Chapter II on the subject of epistemology, Tennant's view that numbers are the result of abstraction from ontologically existing things, and that numerical arithmetical processes are built up by logical inductive inference is well established in fact. This being the case, it may still be held that in the concept of numbers, as numbers are used in our civilization, the abstraction is not only extreme but is complete, so that when we say 7 + 5 = 12, we have no reference whatever to concrete things unless these things are specifically designated as an added consideration. The equation is literally and fully an identity. Mathematics and symbolic logic, unlike Aristotelian logic, have no inherent ontological reference whatever.

Chapter VI in Tennant's *Philosophy of the Sciences* is an excellent summary of his distinctive views on the metaphysics of theology. He opens the discussion by declaring his allegiance to the position occupied by the deists of the eighteenth century. He holds that they should be more accurately called "rational theists," and he refers to them as

> the free lances who . . . seem to be the first to put into practice, in theology as distinct from institutions, etc., that independence to which the Reformation had asserted man's right.[27]

Tennant emphasizes the fact that from the time of the eighteenth century deists onward, a few theologians "have regarded theology as an outgrowth from our knowledge concerning the world and man."[28]

In an excellent[29] historical section[30] Tennant gives his reasons for rejecting all those theories of the nature of theology which tend to isolate it from the other sciences. In accordance with Tennant's view, theology is not isolated, but is "an outgrowth from ordinary knowledge of the world and man."[31] The distinction between reason and revelation maintained by Thomas Aquinas, the so-called "double truth" of Ritschl, and the more subtle distinction between religion of feeling and critical truth, advanced by Schleiermacher, as well as more recent theological pragmatism, such as is well known at the University of Chicago, are all rejected. Tennant has no knowledge of Barthianism or neo-Barthianism, but takes a position directly contrary to any such "double truth" theology or philosophy. The "mythical truth" of neo-orthodoxy would be equally repugnant to him.

Turning away from all systems which would seek to secure for theology an isolated position, or to regard it as an independent science, Tennant holds that

> . . . it may be rather conceived as the final link in a continuous chain of interpretative belief.[32]

According to this position the theistic arguments naturally follow out the methods of the ordinary physical sciences. ". . . it may be suggested that the world of which we have scientific knowledge may be found to admit a reasonable explanation only in terms of theism."[33] By reasonable explanation Tennant means

> something different from a logically and positively established

> world view; for no such product, whether theistic or atheistic, is possible.
>
> The very sciences from which certain schools would cut theology loose may thus afford the only indisputable facts, by building on which, theology can become a body of reasonable beliefs for the guidance of life. And certainly one may say that Butler's analogy between natural and revealed religion might be supplemented to-day by an analogy between natural theology and science. For inductive science has its interpretative explanation-principles, as we have previously observed, and its faith-elements with which the faith of natural theology is, in essence, continuous . . . Science, as we have seen, is not positive or apodeictic; not necessary, unconditional or universal; not adequate or exhaustive . . . The probability which is the guide of science turns out to be ultimately the same in logical and psychological nature as that which is the guide of life and of reasonable prudence. The faith involved in theism such as is based on cumulative teleological considerations is essentially the same as that belief in the world's rationality which is presupposed by the logic and method of science, and theistic belief is but a continuation, by extrapolation, or through points representing further observations, of the curve of "knowledge" which natural science has constructed. In short, science and theism spring from a common root.[34]

Tennant holds that "revealed theology presupposes natural theology . . . " and that "natural theology, apart from the sciences is baseless . . . " But he argues that, " . . . natural science, stopping short of a theistic culmination, has the appearance of an arbitrarily arrested growth. Theology is not an isolated nor an isolable science; it is an outgrowth of our knowledge of the world and man."[35]

Tennant indeed holds that "the only broad differences between science and theology are in respect of their data and the degrees in which verification is possible within their spheres." " . . . the difference seems to be largely one of degree rather than of kind."[36]

Generalizations in Anticipation

It is appropriate at this point, before beginning the detailed study of Tennant's larger work on metaphysics, Volume II of the *Philosophical Theology,* to anticipate certain conclusions and comparisons which may be expected. Going beyond Tennant in his tendency indicated in the above quotations, it will be argued that the data of the sciences are not different from the data of theology, and that the degree of certainty of the conclusions of science is not greater than that of theological metaphysics.

Tennant is in line with the traditional Judeo-Christian position in his development of the cosmological and teleological arguments. These will be discussed in greater detail in the investigation of Volume II of his *Philosophical Theology.* A comparison will be made between Tennant's form of the argument and the form advanced by Thomas Aquinas. In the concluding chapter of this thesis it will be suggested that these arguments may be more effectively stated than has been done by either Tennant or Thomas.

Tennant is distinctly out of line with traditional Christianity[37] in that he does not regard history as a source of data for metaphysical fact. He does not justify this disregard of historical data. Christian theism as historically defined, holds that "God was in Christ..." (II Corinthians 5:15) and that this fact is open to investigation through scientific historical methods.

Tennant's peculiar attitude toward the science of history as discussed in Chapter II of this thesis, and his almost complete rejection of revelation, are but two aspects of the same fundamental attitude. From the historico-Biblical point of view, there is no ontological distinction between revelational and scientific data. I believe in my neighbor because I have discovered him, or because he has revealed himself to me. I believe in a tree outside my window because I have discovered the tree, or because the tree has revealed itself to me. The metaphysics involved is the same, whether the *rapport* between mind and ontological data be described as discovery or revelation.[38]

There is no room in Tennant's philosophy for historical revelation or for historical evidences of theism. It follows that historical evidences of theism are outside the boundaries of this thesis, but the fact that the boundaries are thus drawn should be made clear at this point. To eliminate such fields of evidence is purely arbitrary. An adequate philosophical investigation of the metaphysics of theism must include the entire field of Biblical archaeology and higher criticism.

Of the three ontological existences commonly adhered to by traditional Christianity, the soul, the world, and God, it should be recognized that Tennant believes thoroughly in the substantive existence of all. However, his view of the soul as a pre-existent eternal substance, an entity not originating with the birth of the individual human being, is distinctly outside of the realm of traditional Christian metaphysics. Origen alone among the important early fathers of the church adhered to it. It is essentially a Greek, not a Judeo-Christian concept. It has been a part of many systems of pantheism, and seems to incline any system which takes it in, to move in a pantheistic direction. Tennant gives no empirical data for his views on this point.

As to the world, it has already been pointed out that Tennant's ontology, whereas it does not definitely exclude the reality of nonliving material, nevertheless inclines in the direction of panpsychism or hylozoism.

Tennant's view of God, excluding historical revelational data as a source of metaphysical information, will be seen to contain broken but undissolved elements of the concept of transcendent Deity of the Judeo-Christian tradition. There are times, however, when the distinction between Tennant's theism (or deism) and Bergson's *élan vital,* a conception not uncongenial to the philosophical Naturalists, is very thin. There are even times when Tennant's theism is not so very different from John Dewey's philosophical animism, or vitalistic emergentism. This will appear in the investigation of Dewey's metaphysics.

In short, with regard to the soul, the world, and God, Tennant is not a pantheist, nor a panpsychist, but it is not out of place at this point to anticipate an incipient system of either pantheism, or panpsychism, or both, in his metaphysics.

Is The World Rational?

The first three chapters of Volume II of Tennant's *Philosophical Theology* examine the intelligibility of the world. There is much material here which overlaps that which was investigated under the heading of epistemology in Chapter II of this thesis. However, the point of view here is ontology, rather than epistemology. The titles of these chapters are "The Conformity of the World to Law," "Law and Mechanism," and "Explanation in Science and in Theology: The 'Rationality' of the World."

Tennant's point of view is that of "natural theology." "Physical science is . . . one source of data for the natural theologian who would forswear the *a priori,* and follow the empirical approach to cosmology and theology."

Tennant does not argue that the theologian needs to study any particular branch of physical science in detail, but the theologian must be competent to weigh such views as "that physics is reducible to mechanics and that mechanics is expansible into a mechanical cosmology." From such a point of view "it would follow that the world is a closed system under a reign of law that binds all things fast in fate, admitting of no influence from without and allowing no spontaneity from within."[39]

Tennant feels that mechanistic physics, leading to or implying, a mechanistic philosophical view of the universe is "now largely obsolescent." Nevertheless, there is such a thing as "the regularity of nature," "nature's law abidingness."

"Does Man Legislate for Nature?"

Not assuming that nature is a mechanistic closed system, but inclining to the opposite position, Tennant inquires as to the view of Kant, that man imposes law upon nature by the *a priori* factor in knowledge, and the view of Professor K. Pearson, that "law is due to our sensory selectiveness." Both of these views are rejected.[40] Even supposing that our sensory mechanisms are like sorting machines accepting some coins and rejecting others, "It does not help to account for regularity of connection within the kinds of sense data selected such as makes formulation of law possible. The fact that in the rainbow we discern but seven out of an infinite number of colors will not suffice to explain the unvarying order of the seven colors in the rainbow."[41]

The views of Eddington on the subject of nature and law, though they appear somewhat Kantian, are held by Tennant to be rather idealistic. Eddington is quoted as saying, "What we have called building is rather a selection from the patterns that weave themselves;"[42] and further, "So far as I can see, all that nature was required to furnish is a four-dimensional aggregate of point-events; and since these and their relations . . . may be of any character whatever, it should in any case be possible to pick out a set of entities which would serve as point-events, however badly nature has managed things in the external world. For the use made of the point-events, mind alone is responsible."[43]

Eddington's views are intimately connected with the theory of relativity, in which field Tennant, as a physicist, is quite competent to speak. Tennant explains that Einstein's theory is "a scientific theory or device" for "abstractly describing or representing measurable spatiotemporal relations between phenomenal Objects." Tennant says that Einstein's relativity "has no more of metaphysical significance than has, e. g., the Newtonian system, of which it is an emendation."[44] Instead of independent space and time, as in the Newtonian system, the relativity system adopts the concept of space-time. It is a "chrono-geometry,"[45] or "geo-chronometry."[46] Tennant thinks that Eddington has made the mistake of regarding the abstract principles of relativity as "ontologized geometry." He says

> And it is upon such metaphysical presuppositions as have been indicated, that professor Eddington has based his suggestion concerning Nature's conformity to law. He apparently regards matter not as expressing, among other relations between point-events, one upon which the mind concentrates attention and which it selects out, but, rather, as expressive of a relation which is wholly read in. Such selectiveness is really creativeness.[47]

Tennant says that the "realistic interpreters of Einstein's theory" are in error

> . . . the fact that, by change or manipulation of metric, local gravitation-phenomena can be represented in the conceptual scheme without resort to the notion of gravitational

> force is construed in such terms as that, in some regions, space is puckered or crumpled. This, of course, is literalisation of a metonymy. Expressions such as 'curvature of space,' which figure in non-Euclidean geometry, do not mean that space, as if substantial or quasi-material, is curved, but indicate a characteristic of the metric that is arbitrarily introduced into the ideal manifold.[48]

In Volume I of his *magnum opus* Tennant explained

> that the angles of a triangle are together equal to two right angles, is a proposition that is wont to be cited as an instance of universal and necessary truth. As a matter of fact, its 'truth' depends on whether we define a line after Euclid or after Lobachewsky: that is matter of selection, and of convenience for empirical physics. Such postulates, apart from empirical applicability, are neither true nor false; they are comparable with the rules of chess that a bishop shall move only diagonally.[49]

In Euclidian geometry a straight line is, by definition, the shortest distance between two points. In ordinary surveying we assume that the rays of light from a distant object follow a straight line. This assumption is not quite correct in all cases. The rays of light may be curved. Lobachewsky's geometry recognizes the probable curvature of light rays. It is in no sense contradictory to the assumptions and conclusions of Euclidian geometry. It simply has different definitions to start with.

Professor R. S. Underwood, Ph. D., of Texas Technological College, in the *Scientific Monthly,* for July, 1948,[50] an eminent authority in mathematics of astronomy, specifically corroborates what I should like to call the rational view of relativity. He says

> And here we get into the semantic anarchy that delights the hearts of some popular expositors of science. A "straight line" is after all fundamentally a mental concept, difficult to define but easy to understand in its ordinary connotation. Since a definite concept of its meaning is shared by intelligent laymen as well as by mathematicians, it seems that a straight line should be entitled to remain straight in the interest of mutual understanding and priority of definition. This means

> that the two far ends should never meet, whatever the universe may be like. But what happens? Instead of making the simple statement that a ray of light does not move in a straight line —an assertion which, true or false, would be easily understood by those who remember their Euclid—some thinkers in this field prefer to *define* a straight line as the path of a light ray, come what may. Thereby they are led, logically enough, to such subtleties as "curved" and even "non-Euclidean" space. Their straight lines run straight in a bending "space"—and another good word which was formerly accepted as meaning something at least vaguely comprehensible goes into Websterian hysterics. But of course all this is chiefly a quarrel with words rather than ideas, and should not be taken too seriously. Speaking for myself alone, I have always felt that technicians should invent technical words for technical uses, and not confiscate and revamp the old standbys.

It might be added, in even simpler terms than Tennant employs, that the mathematical and physical theory of relativity in no wise contradicts the orderliness of nature or the orderliness of logical thought. The higher dimensional symbols of the chrono-geometry of relativity, above the "four-dimensional aggregate of point-events," to which Eddington refers are not intended to stand for ontological existences, except as these higher dimensional symbols are parts of equations. The conclusion to processes involving the higher dimensions always resolves itself into three dimensions, if time is not included, or four dimensions if time is included. Higher dimensional symbols are merely symbols in transit. Taken out of their equations, and considered apart from their conclusions, they have no more meaning than the word "is" outside of a sentence.

Daniel Lamont[51] says, ". . . mathematicians express the paradoxical characteristic of dimensions in their own domain by the square root of minus one." But there is no paradox to the square root of minus one, if the term is left in its context.[52] The square root of minus one is no more absurd than minus one alone. The simple term "minus one" must be perfectly meaningless if standing by itself. What could be less than nothing? However, the proposition "Four minus one equals three" is perfectly intelligible.

The square root of minus one in mathematical operations stands for the revolution of a point counter-clockwise through one quadrant. In its context there is no paradox about it.

As Tennant says

> Space, time, and space-time are neither phenomenal nor ontal things. They are, rather, names for systems of postulated relations between ideal entities, which abstractly represent, like a diagram or a map, measurable relations between phenomenal and largely conceptual things and events. Whether ontology be an attainable kind of knowledge or not, it certainly is not to be attained by reifying our most abstract ideal constructions. Thus, if space-time remained the formal concept of a pure mathematics, the point-events into which it is said to be "analyzed," should be instants at points, unextended bodies at instants of time, or entities non-existent save as ideas presented by an abstracting subject to himself.[53]

The evil of reifying numbers, Tennant thinks, is illustrated by Plato, Berkeley, and Leibnitz. He says

> The phenomenal world is, as a matter of fact, largely ordered by measure, number, and law. It cannot *be* numbers and abstract laws; for they contain no alogical and perceptual element whereby phenomenality is constituted . . . Plato, building on Pythagoreanism, made it plain at the beginning of philosophy that metaphysics, proceeding along such lines as he pursued, comes at once to an absolute *impasse*. . . . This way also leads to an *impasse,* revealed, in spite of themselves, by Berkeley and Leibniz.[54]

Tennant feels that the only way out of the difficulty into which Eddington has fallen is

> that of inferring from phenomena to things *per se* that are not abstract ideas such as numbers, etc., but agents with which our minds are in *rapport,* and which furnish the objective factor of our subjective-objective experience.[55] . . . in order that the phenomenal . . . be forthcoming, it must be appearance *of* something as well as appearance *to* somebody.[56]

Tennant concludes that there is nothing in the field of mathematics of relativity to prove that ontal nature is paradoxical in itself.

> ... phenomenal Nature is so constituted as to admit of routine-formulae and physical constants being applied to some of her processes; and that fact, ... could not be forthcoming if in the ontal realm there were not at least as much of regularity-nexus as science will ever discover in the phenomenal world.[57]

"The Meanings of 'Law'"

In the conclusion of the preceding section, Tennant describes law within the sphere of science as a "metaphorical term" and he holds that it "must be understood to mean no more than 'formula'." He introduces the discussion of the meaning of law by distinguishing two very different conceptions. According to one, some kind of necessity is essential to any kind of law. According to the other concept, necessity is altogether absent. The latter is the current conception in the field of science; it "avoids metaphysical insinuation and, [is] chary as to *a priori* principles . . ." Empirically and inductively, Tennant holds, scientific writers now commonly present such laws as that of gravitation, as "descriptions of observed similarities," matters of "conditional certainty or probability." Such laws are said to be "provisional generalizations." He says

> The progress of science, from empirical facts to laws and principles, is by a struggle for existence between hypotheses, and survival of the fittest of them. The established law is the successful hypothesis, the induction, which, together with its deducible consequences, fits the facts hitherto forthcoming, or is pragmatically 'verified'.[58] The happy guess is essential. "Seek and ye shall find" is the principle on which scientific discovery is based. But the seeking is not mere rummaging. To approach Nature with a blank mind, or with a mind approximating to the *tabula rasa,* is to find nothing worth finding. Kepler tells how he worked for years, refuting conjecture after conjecture, before arriving at the discovery that the orbits are ellipses. On the other hand, happy guesses may

> remain but guesses. Some few of the guesses of the ancient Greeks have proved happy, and they have sometimes been regarded as discoveries and anticipations of great generalisations of modern science. But "he only discovers who proves." Not untested fancy, for which sometimes the honourable name of "philosophy" is arrogated, but shrewdness based on experience, constitutes the imagination that produces genuine and scientific hypotheses.[59]

As to the type of law involving necessity, Tennant says that

> . . . there is no empirical transition from the hitherto unvarying to the invariable, and no logical transition from the problematic induction to the unconditionally certain proposition . . . [Such laws] cannot be empirically or scientifically knowable . . . the necessity in question must then be merely postulate, or else be known *a priori.*[60]

If it is held that necessary law is known *a priori,* Tennant thinks, we are inevitably driven to rationalism, both epistemological and ontological.

"Logical" Necessity

Tennant proceeds next to discuss types of necessity, first of which is logical implication. This is familiar ground. Tennant points out, of course, that laws of logical necessity are not necessarily laws of ontological Nature. Tennant disagrees with Spinoza, Kant and Descartes in their rationalistic position. He holds that rationalism in its various forms practically denies that there is any further question beyond that of logical implication.

Is There a Necessary Parallelism Between Reason and Objects?

Contrary to rationalism, Tennant holds that the correspondence between *causa* and *ratio,* is a correspondence "other than identity."

> . . . if there is to be conformity of the Actual world to law, there must be Actual determination or necessitation in things or existents, as well as logical necessitation between propositions involving number, measure, etc. Neither of these kinds

> of determination logically implies the other; there is no *a priori* necessity that the Actual shall conform, or that the ideal shall apply. But that there shall be both kinds of necessitation, and that they shall, so to speak, march together, is the logical precondition of the *a priori* science of Nature that Kant conceived.[61]

Tennant denies this parallelism between ontologically existing objects and abstract rational principles. Kant thought that Newton had furnished in his dynamics a system of rigid conformity between abstract mathematical law and the ontology of physics. Tennant is not at all sure that "things do rigidly conform" to the abstractions of mathematics. Brute facts do not always fit Euclidian geometry, hence the necessity for the geometry of Lobachewsky.

Necessary Law as Self-subsistent

A third type of necessity assumes law as "self-subsistent" and assumes that God must have been bound to do what "was fitting." Tennant quotes Spinoza as expressing this concept of necessary law. In his famous essay on *The Will,* Jonathan Edwards takes practically the same position as Spinoza. Denying all freedom to God, he insists repeatedly that God is absolutely bound to do whatever is fitting. Tennant identifies this type of necessity with the concept of the *universale ante rem.*

Ontological Necessity, a Working Assumption

Contrary to any ontological *a priorism,* Tennant teaches that

> The conception of law, in so far as it transcends actual experience, being neither *a priori* nor *a posteriori,* represents a character that we must read into the world, or into things, if we would make them expressible by mathematical and mechanical symbols.[62]

Universalia in rebus is Tennant's postulate. The conception of an immutable and all-pervading law which Nature is bound to obey, Tennant holds to be an unwarrantable assertion. Nevertheless, the postulation of a natural order beyond our individual experience has proved to be highly successful in experimental science. Tennant says that the recent studies in the basic principles of inductive logic indicate that general laws are probably ontological but are also indemonstrable.[63] "If we rule out the *prius* of necessary law we must also rule out ungrounded coincidence, as no satisfactory explanation of Nature's conformity to law."[64]

> When the travesties of such reign of law as science may legitimately assert, made by philosophy that would scorn empirical evidence and control, are set aside, there remains the fact that laws have obtained and do obtain, whatever the future may bring forth. And this fact must have a sufficient reason, though neither science nor certain kinds of philosophy may concern themselves to look for it. Unvarying concomitance or sequence is, indeed, logically distinct from necessary connexion; but it points to Actual connexion and necessitation.[65]

In other words, there is such a thing as "regularity of evocative law" evinced by the world.

> In the relatively settled order of Nature we may see the first link of the chain of facts which, while they do not logically demand, nevertheless cumulatively suggest as reasonable, the teleological interpretation in which theism essentially consists, in so far as its intellectual aspect is concerned.[66]

Thus there is sufficient regularity observable in Nature to stimulate our minds toward the investigation of the general cause or Cause of such regularity.

"Law and Mechanism"

Chapter II in Tennant's major work on metaphysics[67] entitled "Law and Mechanism" presents arguments now rather generally accepted by physicists to the effect that the material world cannot be merely mechanistically conceived. This chapter would be excellent reading for one not familiar with the general course of opinion on this subject. I shall not try to examine the chapter in detail but only to point out certain important arguments and conclusions.

Tennant holds that

> . . . there are no strong reasons for believing rigid mechanism to be true. For such reasons we must wait until electron-like entities have been devised and found negotiable, that are of one kind only, and obey one simple law of central forces. . . . If they [mechanistic theories] were true, such mechanism could not possibly be the whole truth about the material world. For any interaction between matter and spirit would be beyond its range: yet, without some interaction between spirit and matter—or rather, between spirit and the ontal counterpart to phenomenal and conceptual matter—perception, etc., become unthinkable.[68]

It was, says Tennant, the reification of mass which gave support to the theory of pure mechanism.

> Mass either is a property intrinsic to some *thing* or else is a number: it is no more a substantival entity than 5 percent is a sum of money. Without the substantial we may have rigid mechanism and kinematics; with it we have physics that is not mechanics, and metaphysics that is not physics.[69]

In other words, Tennant holds that mass is a property intrinsic to some thing, not a thing in itself, and not a mere number.

The second law of thermo-dynamics is held to be "statistical" and "empirical," the "significance of which is not abolished when one points out that it is a statistical law."[70]

Evidence that material nature is not wholly mechanistic is largely based upon the quantum theory which implies that force is discontinuous.

> The quantum is another alogicality in Nature; and it is unintelligible in the further sense of being unlinked with the totality of current physical ideas.
>
> It would seem to be the outcome of the foregoing discussion that quantitative science reveals, and also presupposes, a reign of law, and the hierarchy of laws, provided by . . . macroscopic mechanism; but that science neither reveals nor presupposes a rigid mechanism of microscopic entities.[71]

Perhaps most significant in this chapter is Tennant's conditional clause, "If the action-leap should come, as seems now overwhelmingly probable, to be unanimously accepted as a new universal constant of Nature . . ."[72] The fact seems to be that physical science for nearly half a century has been faced with what appear to be important discontinuities in the material world. Mathematical rationalistic theories which in the last century were expected to guide toward a complete continuity including all material things, have definitely broken down. Many philosophers and scientists have leaped to the conclusion of a materialistically "open world." Eddington in his Gifford Lectures for 1927[73] brings forward the "principle of indeterminacy," and this on the basis of the discontinuity confronting experimental physicists.

An illustration in the history of science may not be out of place. Professor Edward Rosen, Ph. D., of C. C. N. Y. in an article entitled "A Full Universe" in the *Scientific Monthly,* September, 1946,[74] describes the revolution in scientific thinking created by the discovery that the planets do not revolve in actual solid spheres. Rosen says

> The Platonic principle of plenitude united with the Aristotelian concept of continuity to produce a vision in Ptolemy's mind of a tightly-knit universe with no empty space.

After recounting the history of the overthrow of Ptolemaic astronomy, Rosen summarizes

> If Copernicus struck the principle of plenitude in the solar plexus and Brahe delivered the knockout blow, it was Kepler who counted ten over the prostrate form. For when he discovered that the paths of the planets are ellipses and not circles or combinations of circles, he forever dissociated the heavenly bodies from unseen carrying spheres or spherical shells.

But the doctrine of the full universe was not completely destroyed.

> Yet the doctrine of the full universe, driven from the heavens, clung tenaciously to life on the earth. If a column of mercury rose in a barometer, nature was evidently filling an empty space, because it abhorred a vacuum.
>
> The idea of fullness, divorced from the principle of continuity or contiguity, reappeared in modern astronomy in a new dress . . . was there not perhaps some underlying simple numer-

> ical relationship which could bind the several discrete bodies into a single, harmonious, organic whole? Like Mendeleyev's Periodic Table of Chemical Elements, the arithmetical relationship pointed the way to the discovery of the unknown. In this quantified form, then, the principle of plenitude is applied to the solar system, and from time to time fresh attempts are made to remedy its imperfections and to learn whether it does indeed answer to some as yet dimly understood distribution of cosmic matter.

These are the concluding words of Rosen's article. These remarks should not convey the impression that he believes in a full universe; he keeps his own opinions in the background but seems more or less to be rejecting the whole idea of continuity.

Philosophical Meaning of Discontinuity?

From the philosophical point of view it is not out of place to inquire, What is the meaning of discontinuity? If any object of thought is in human discourse, then obviously it is not discontinuous with human affairs. It is at least related to discourse, and through discourse, it is related to all other objects of thought. Discourse alone may be conceived as purely epistemological. But discourse *about ontologically existing objects* has ontological reference, and is itself an ontologically existing relationship between objects. "Objects" may be merely conceptual, but in the nature of the situation if there is any ontologically existing object completely discontinuous from all other things, it could not be mentioned in discourse without contradiction. Whether objects exist ontologically, and whether there are other connections than mere discourse, are subjects for investigation; and whether the connections are of the type supposed or of some other type, is also a subject for investigation. The fact is, however, that absolute and complete discontinuity is a logically contradictory term. All things of which human beings can speak or think are in one way or another related, and thus continuous.

With regard to the material world, the instantaneous leap of the electron from one orbit to another seems to be clearly inferred from adequate data. The quantum theory of light seems to be a strong probability. Thus the discontinuity of matter, long ago taught by Democritus, seems to be paralleled by discontinuity of force. Just as the atoms are not physically tied together with bits of thread, so the quanta of energy seem not to be spatially contiguous. Theoretical continuous ether may be abandoned and there may be such a situation as the completely empty "void." Philosophically, however, to interpret such absences of continuity or contiguity as complete and absolute, even in the material sense, is indeed a leap in the dark.

Of course, the fact that no objects of thought are absolutely discontinuous in *thought* does not prove anything in regard to the material world. However, a relation in *occurring thought* is a relation; it further serves as an illustration and a possible parallel. Not only are the different orbits of electrons related in thought and compared in discourse, and the quanta of energy likewise, but philosophically, the very "thisness" of the electron which leaps from one orbit to another implies the postulation of some kind of material continuity.

Modern physics seems to have discovered, not by any means an absolute discontinuity in the material world, but merely the fact that *continuity is not dependent upon contiguity.*

Tennant himself does not hold to true discontinuity, for in those places in which he thinks modern physics has proved a genuine and absolute material discontinuity, he fills in the gap by postulating a "spiritual" continuous entity, filling, or even constituting, all material objects. Both matter and force being granular, and the grains not being contiguous, and our older conception of continuity having implied contiguity, we are advised to bring in spiritual substance[75] to occupy the empty spaces between the electrons and between the quanta.

But why must any space-occupying substance fill all space? Why be afraid of empty space? This is not a question of physics, but a question of philosophy, after the general evidences of physics have been handed in. If this material world is actually discontinuous, then it simply cannot be regarded as a machine. Negatively this is Tennant's conclusion and he feels that he is advancing the cause of theism. But it may be argued that although his view of matter as possibly or even probably composed of spirit, is not entirely incompatible with theism, yet it is a far more difficult view than realistic dualism to harmonize with theism on the one hand, and material science on the other. Tennant seeks to defend theism, after having conceded discontinuity to the material world, by spiritualizing the material, and then *denying* the discontinuity previously conceded. But if the material world is truly discontinuous, it is discontinuous no matter what matter is made of, whether spirit or non-spirit. Absolute ontological discontinuity is not proved, and "spiritualizing" matter does not help in the least to solve the problem if discontinuity be proved.

After all, there are two important *kinds* of beings in the continuous, integrated ontological world.[76] In our process of seeking to correlate and integrate ourselves with the various peoples of the world, we, in the American democracy at least, do not regard human intelligences as *mere* mechanisms. If it were possible for us to put all of humanity into a smoothly running well-oiled cycle or system of cycles, if we could reduce sociology to mechanism, most of us would feel that we had taken all the interest out of life. Persons are certainly not discontinuous in the social order, but they are to a certain degree spontaneous, and this spontaneity or free will of persons within the social and the material orders is just what makes life interesting.

On the other hand, our attitude toward atoms is radically different from our attitude toward people. No one thinks of seeking to hold a conference with the electrons and persuade them to form a military alliance with the democracies. The whole plan seems to be to devise a mechanical bomb as sure-fire as possible, so that when democracy finds it necessary to "pull the trigger," the mechanical chain of causality will infallibly be discharged.

Tennant speaks scornfully of the *vis a tergo*[77] view of material nature.[78] Thus he begins his chapter on "Law and Mechanism." One need not deny *vis incita* (implanted force) or spontaneity, in personal beings as such. Tennant says, "That mind or spirit can cause . . . matter to move is not denied . . . "[79] But Tennant does not discriminate the fact that the action of mind upon matter seems always to be of the nature of "trigger" causality. The mental act does not add to, or subtract from, the material causal system. When it comes to material causality, it would seem that Tennant's scorn of the *vis a tergo* is an indication of getting the cart before the horse. The atomic "chain reaction" has not proceeded beyond the "horse and buggy" in this respect. This *vis* must start with the *tergum*. The driver still sits behind the horse's tail! The material-world still operates from cause to effect. Merely negative discoveries of lack of contiguity are not yet sufficient to disprove the mechanistic continuity of the causal chain in material things. Merely because its granules are not contiguous, the great physicists are not generally convinced that the material world is absolutely discontinuous.

"Explanation . . . 'Rationality of the world' "

Tennant concludes his chapter on "Law and Mechanism" with the remark that Newton's first hope, the hope that physics might be reduced to mechanics, has proved unattainable. He opens his chapter on "Explanation and Rationality" with the question whether Newton's second hope, the hope of a better method of philosophy, issuing in a mechanical world view, may be realized.

Tennant holds that "Newton's second hope may yet be realizable" if a "less rigid kind of mechanism" is adopted. By this he means to spiritualize mechanics. He says

> The ontal world-elements may be not only heterogeneous but also living. They may be related to one another in ways other than that which mechanism prescribes, without prejudice to the less rigid mechanicalness or regularity of Nature on the molar scale. So far is physical science from threatening the banishment of spirit and spontaneity that it does not necessitate even the dualism of disparate spirit and matter. Spiritualism is equally compatible with science; and while spirit is underivable from matter, matter may well be an appearance of spirit.[80]

Tennant thinks that the spiritualistic interpretation of matter may yield "a preferable ontology." In Tennant's phrase, "the dualism of *disparate* spirit and matter," the word "disparate" is dragged in, like Dewey's "great gulf," only to be rejected. Spirit and matter may interact, may be integrated, need not be disparate, and yet may be different kinds of being. But "the spiritualistic interpretation of matter" leaves one great aspect of the world, *res extensa,* or *res movens,* without adequate ontological substance. If one is to be an idealist, then the substance of all things is idea or spirit, and there is no material substance or personal substance other than idea or spirit. However, if one is not an idealist, as Tennant is not, it seems as absurd to identify all matter as spirit, as it is to identify all spirit as made of inert matter. Tennant, however, holds that "spiritualism singularistic as to substance-kind and pluralistic as to instances of it, is empirically possible."[81]

"The 'Rationality' of the World"

Having taken up with a kind of natural law which "asserts no more than a hierarchy of independent laws," Tennant points out that although such regularity of Nature as is observable does not directly imply "one Mind," yet, he holds

> . . . it is not unreasonable, though logical rationality or coercive proof is out of the question, to seek an explanation of the world's order by postulating a Mind, creative and directive of Nature. Such an attempt is at least no more absurd than the alternative of referring the world's adaptedness, and its suggested meaning for rational beings, to unfounded coincidence.[82]

After these preliminaries Tennant in his Chapter III launches out into a discussion of the nature of explanation.

> To explain is not only to do something to a proposition or an event, comparable to smoothing out a crumpled leaf, but also to do something for minds. . . . A bud is explicated when it has unfolded itself into a flower; it is explained when its parts are traceable by us as modified leaves. To explain, in short, is to make intelligible; and intelligibility depends on minds. 'Intelligible', however, bears several meanings; and

> discrimination between them is essential to philosophy and to clear thinking.[83]

The theory of explanation is thus shown to be both ontological and epistemological.

Tennant enumerates seven different types or aspects of explanation, first of which is, (1) "Reduction to the familiar" or, more elaborately stated, assimilation to "some apperceptive system." This is similar to Bridgman's interesting analysis.[84] Bridgman says

> I believe that examination will show that the essence of an explanation consists in reducing a situation to elements with which we are so familiar that we accept them as a matter of course, so that our curiosity rests. "Reducing a situation to elements" means, from the operational point of view, discovering familiar correlations between the phenomena of which the situation is composed.

(2) "Causal explanation of the cruder sort . . . the relatively crude notion of the efficient causation" is Tennant's second type of explanation. Here as elsewhere, he identifies *verae causae* with *conditiones sine quibus non,* and with *propter hoc.* The last mentioned term, *propter hoc,* is said to exhibit "the antecedents, out of which, and the stages through which, the posterior thing came to be, and to be what it is."[85] Protest has been made against the identification of *conditio sine qua non* with cause. Again, protest may be made against the confusion of "antecedents out of which" and "stages through which" with causality. *Propter hoc* is indeed a correct Latin formula for causality but "stages through which," may or may not be causes, and "antecedents out of which" expresses causality only if "out of" is interpreted as meaning "because of."

Tennant correctly indicates that physical causal explanation is only relative, because it deals with only "proximate" causes. This process of explanation he characterizes by "the relatively crude notion of efficient causation."

(3) Clarification is Tennant's third type of explanation. This he defines as meaning, not "simplicity," nor "definiteness or distinctness," but "non-obscurity through the understanding . . . as re-

stricted to . . . the formal categories alone, . . . abstraction, . . . form without matter."

Tennant continues

> The image or idea of a three-sided, hilly, fragrant, hayfield is less clear than that of an Euclidean triangle, which is simply shape abstracted from size, colour, etc., apart from one or more of which, triangularity is non-Actuality.[86]

Criticizing this type of explanation, Tennant says

> If the Real is the rational, and the rational is the clear, i.e., abstract ideas connected only by logical and mathematical relations, then our world is not Real or rational.[87]

In such case, Tennant concludes

> The philosophy to which we betake ourselves is not an explanation of the world, but a satisfaction of our wishes and predilections.[88]

(4) A type of explanation which "professes to bring us face to face with the ontal behind the phenomenal," is next briefly discussed and dismissed. He does not name the view to which he refers. It is inconsistent with Tennant's theory of phenomenalism. It is not dualistic realism. The monistic critical realism of D. C. Macintosh would answer to all the points in Tennant's brief description.

(5) Explanation by description, or the substituting of description for explanation, is the fifth type in Tennant's list. What he really is presenting here is the phenomenalism of Mach, though he does not designate it as phenomenalism. He says

> Its typical representative, Mach, is unable always to abide by the exaggerated statement that economy constitutes the sole aim and function of science; and he recognizes that economical thought presupposes constancy in facts.[89]

Mach's "economy" is effected by striking noumenal ontology out of the picture. Tennant argues that in descriptive explanation of the type he has in mind, "It is also tacitly confessed that the Nature which is described is already largely an artifact."[90] He holds that "it logically implies . . . the 'real' categories."[91]

In Chapter Two of this thesis was pointed out the confusion of terms brought about by Tennant's adoption of the word "phenomenalism" in his epistemology, Volume I of his *magnum opus.* The reader will remember that [92] in Volume I, Tennant refers to phenomenalism as a term which "has recently been applied to the doctrine of Mach." Tennant's Volume II was published in 1930, two years later than Volume I. With the spread of the phenomenalism, or phenomenology, of Husserl, it must have been increasingly difficult for Tennant to maintain his own proprietary rights in the term.

Tennant concludes his criticism under this heading with the words

> A methodological principle, such as Ockham's razor, [the principle of economy of hypotheses] is not to be confounded with a law of Nature. When it is so regarded, it becomes a superstition, a case of "setting up conceits in Nature's stead."[93]

As to the type of explanation here under consideration, the word description is substituted by Tennant for Mach's own term phenomenalism. The latter term Tennant wishes to reserve for himself. But the word description by its etymology implies description of something. Explanation by description without ontological reference is not description at all. Byrd's description of the Antarctic continent itself is quite distinct from the phenomena of it which he experienced. Mach's view is phenomenalism and had much better be so called.

(6) Reserving the term "teleological" (his seventh type of explanation) for that which "regards effects as conditioned by foresight and intention, i.e., purpose," Tennant's sixth type of explanation is biological. He argues

> Mechanism is unable to predict the emergence in Nature of organic wholes, or organisms manifesting a 'formative principle' of some kind, which differ essentially not only from inanimate natural bodies, but also from non-living artifacts such as man-made machines . . . evolutionary progressiveness cannot be accounted for without resorting to kinds of change such as mechanism does not contemplate.[94]

Tennant vigorously denies teleology or purpose to mere biological processes. He does believe that "animal development is controlled by mind," but he holds that such activities of "mind" are

> *Zweckmässigkeit ohne Zweck,* and, therefore, not teleological at all, if teleology and final causation involve a preconceived idea of the *telos* to be accomplished, and volitional adaptation of means to end. Blind impulse, and what have been called *elan vital,* the hormic, etc., are very different from purposive action, . . .[95]

Tennant continues by showing that

> . . . 'unconscious purposiveness' is a phrase which either ministers to the confounding of things that are distinct or else is a contradiction in terms.[96]

The importance of Tennant's remark last quoted can scarcely be over-emphasized, if one would understand his type of philosophy. Philosophical and pseudo-scientific literature abounds in references to "unconscious intelligence."[97]

Agreeing with Tennant in his rejection of "unconscious purposiveness," the critical student may feel, nevertheless, that Tennant has fallen into the very blunder which he rejects. He says

> A teleologically ordered cosmos is no necessary result of even a spiritualistic universe in which every organism, or every species, pursues its own self-conservation and self-betterment without foresight and conspiration with others.[98]

The idea that "every organism . . . pursues its own . . . self-betterment without foresight," seems also self-contradictory in its context. Tennant is not speaking of random action *sometimes* leading to self-betterment, but of a general rule.[99] A human being performing an elaborate and complicated act without conscious thought is a common phenomenon. When we observe a pianist, however, we do not ascribe his skillful action to the idea that his fingers and the keys of the piano are made out of soul stuff, as Tennant does in effect. On the contrary, we conclude that the intelligence which he is manifesting without present conscious elaboration of his purposes, is a result, a process in which intelligence, previously exercised through long, painstaking, careful practice, played an important role.

Similarly, in nature, *Zweckmässigkeit ohne Zweck* seems contradictory. If the object or organism performing the purposive act is not itself doing so consciously, we reasonably infer that the purposive act is to a *previous* conscious intelligence. This is the argument found in the Book of Job.[100]

> Is it by thy wisdom that the hawk soareth, And stretched her wings toward the south? Is it at thy command that the eagle mounteth up, And maketh her nest on high?

This suggestion seems more reasonable than Tennant's idea that the oriole builds its nest[101] because "material" nature, though without conscious purpose, is constituted of multiple non-material unconscious spirits.

(7) Tennant's seventh and last type of explanation, the "teleological" as he calls it, is briefly presented in his chapter on "The 'Rationality' of the World" because it is to be the main subject of his succeeding chapter, "Cosmic Teleology." Tennant says

> . . . if final causes are to be more than convenient abstractions for figurative description, like motives, and are to be endowed with efficiency, the only final *causes* will be agents or souls ideating and willing, and the only *final* causes will be such agents when achieving an end which is not merely a temporally last stage of a series but an end that was preconceived, and whose actualization was intended.[102]

Tennant holds that only "in the sphere of human conduct and history" is teleology or purposiveness over and above adaptiveness, observable. This is a realm which, says Tennant, "we understand (*begreifen*) least; . . . but . . . which, in another sense (*verstehen*), we understand best."[103]

Having concluded his series of types of explanation, Tennant closes his chapter on "The 'Rationality' of the World" with a discussion of definitions of rationality. This is more epistemology than ontology, but it has ontological implications. Tennant rejects (a) the idea that what constitutes the world is "universals" or noümena[104] in the Platonic sense, and (b) that the world is "wholly readable by formal categories." Tennant's view of rationality, (c) as summarized in his own words,[105] is that

> . . . the world is so far alogical as to involve, for its explanation, the causal category, which is, nevertheless, as

> interpretative and anthropic as that of end. [Tennant concludes that] the world is not rational, or wholly rational, unless rationality consists in reasonableness.

"Cosmic Teleology"

Tennant's Chapter IV, the full title of which is "The Empirical Approach to Theism: Cosmic Teleology," is described by him in a later reference[106] in the words ". . . it was in Chapter IV that our hilltop was reached." Brightman[107] says, "F. R. Tennant's systematic two volume work on *Philosophical Theology* . . . [is] the greatest product of recent British philosophy of religion . . ." Brightman calls special attention[108] to this chapter of Tennant's.

It is not uncommon for a writer in philosophy to emphasize the originality of his own views by a distortion of those views which have been commonly held. Tennant inadvertently descends to this questionable literary device in the very first sentence of this great chapter.

> The classical proofs of the being of God sought to demonstrate that there is a Real counterpart to a preconceived idea of God, such as was moulded in the course of the development of religion, or constructed by speculative philosophy aloof from religious experience and from avowedly anthropic interpretation, or obtained by both these methods combined.[109]

If Tennant had specified the ontological argument in its Anselmic form, his remark might have had some justification, but he uses the word, "proofs," plural, thus rendering his statement inclusive of the cosmological and teleological arguments, of which his dictum could not possibly be true.

Of "the empirically-minded theologian" Tennant says,

> He asks how the world, inclusive of man, is to be explained. He would let the Actual world tell its own story and offer its own suggestions: not silence it while abstractive speculation, setting out with presuppositions possibly irrelevant to Actuality, weaves a system of thought which may prove to conflict with facts. The *explicanda* which he investigates, and the results of his investigation, alone will determine the content or

> essence of the explicative idea of God to which he is led, as well as the grounds for belief that such an essence exists.[110]

These words, of course, correctly set forth the empirical, philosophical approach to theism. The statement is true as far as it goes; but (1) in its context it falsely implies that this empiricism, letting "the Actual world tell its own story," is something new, something not found in any of the "classical proofs."

Moreover (2) this statement does not go far enough. It has been shown above that Tennant is inconsistent in his attitude toward the data of history. It is almost as though a mosquito were to write a philosophical treatise on the nature of a man, observing him while he is in the act of reading a book, the mosquito refusing, by definition of his philosophy, to consider historical data, indicating that the man was in the habit of speaking or writing books himself. Scientific empirical philosophy which disregards the investigation of an alleged historical incarnation, is as mutilated as it would be if it refused to consider the data of biology.

Tennant is right, of course, in holding that the empirical approach to theism is not based upon presuppositions of any kind. That is not to say that the individual who employs the empirical method necessarily himself has an empty head. Thomas, indeed, believed that the idea of God is innate. Thomas says[111] ". . . to know God exists in a general and a confused way is implanted in us by nature." Entirely apart from this innate idea, however, an examination of nature in the process of the cosmological and teleological arguments is held to established *parts* of the theistic concept. If Thomas is taken as one who used the "classical proofs," he is one who is certainly not guilty of Tennant's charge of seeking to "demonstrate that there is a Real counterpart to a preconceived idea of God." Thomas *rejected* the ontological argument.

As Thomas Aquinas uses the *inductive arguments*[112] he concludes each particular process of argumentation in such a way as to make it clear that he does not hold that each particular argument proves theism in its entirety. The fragments of theism having been established by inductive reasoning, the question of theism as a whole then becomes analogous to any other incomplete induction. All of these steps are taken without dependence upon presupposititions or preconceived ideas. Indeed, in the case of Thomas, Tennant's general remark would apply,—"Revealed religion, such as the Christian faith, logically presupposes natural religion . . ."[113]

By "natural religion" Tennant means religion arrived at by inductive processes. It is not a teaching of, but would be a reasonable development of, both Tennant and Thomas to hold that the rational element in revealed religion itself involves induction. That evidences for revelation are empirically known Jesus often emphasized.[114]

Natural Theology vs. Rational Theology
The Ontological Argument

Tennant sharply distinguishes his own inductive process of reasoning, and his own conclusions empirically reached, from what he calls "rational theology." His own view he calls "natural theology". Rational theology is made a "rider" of the ontological argument and the latter is dismissed as with a wave of the hand.

> Rational and *a priori* theology stands or falls with the ontological argument; and if that argument—or some substitute for it, alleged to express its intent—still seems self-evidently cogent to a philosopher here and there, its fallaciousness is self-evident to all the rest.[115]

History of the Ontological Argument

It would be valuable to trace out in some detail the history of the ontological argument. (1) There should be a thorough study of the philosophical background and presuppositions of Anselm. (1033-1109) (2) The ontological argument as developed by Descartes (1596-1650) should be thoroughly investigated and clearly explicated. The fact that Descartes advanced an *inductive* form of the ontological argument is known to very few. Philosophy teachers of my acquaintance are inclined to deny it. Only in Leibnitz,[116] Hodge, and Windelband have I found references to this important Cartesian view. (3) An investigation of Leibnitz' (1646-1716) use of the ontological argument will be of less importance than the study of the argument in Descartes. Although Leibnitz, with his idealism, seems to have a greater influence upon current philosophy in general in America than Descartes with his dualism, yet the ontological argument in Leibnitz scarcely contains anything not found in Anselm. (4) Kant's (1724-1804) handling of the ontological argument would merit a very elaborate study. I believe it can be shown that he knew only the Anselmic form, and that, through Leibnitz.

It will be impossible, of course, within the compass of this thesis to enter into a sufficiently full investigation of the history of the ontological argument to throw all the light possible upon Tennant's attitude toward it. However, in line with the above four suggestions, I should like to present the following material.

Anselm's Statement of the Ontological Argument

Tennant, like Kant, seems to know only the Anselmic form of the ontological argument.[117] Anselm argues

> For the greatest conceivable being can only be conceived to exist without a beginning; but whatever can be conceived to exist, and yet does not exist, can be conceived to exist only through a beginning. Therefore, the greatest conceivable being cannot be conceived to be, and yet not be. Therefore, if it can be conceived to be, it is of necessity.[118]

In rejecting the triviality of this type of argument, we must remember that the assumption of the reality of universals, after the manner of Platonism, was in the air at Canterbury. It had not occurred to Anselm that anyone would question Platonic realism. If the universal can be clearly defined, it must exist. Further, we must remember that the *Proslogion* had been preceded by the *Monologion,* in which the teleological and cosmological arguments had been set forth.

Moreover, in his reply to Gaunilon,[119] Anselm says

> There are therefore existing, things from which we may interpret the character of this being. Thus also, the fool . . . can usually be refuted if he denies that, from these things, we can acquire a knowledge of this greatest conceivable being.

> . . . "The invisible things of God from the creation of the world, are clearly seen, being understood by the things that are made, even his eternal Power and Godhead."

It thus appears that Anselm, Platonist that he was, felt the need of inductive reasoning *a posteriori* from effect to Cause.

Descartes on the Ontological Argument

It is generally understood that Descartes presented the argument of Anselm in a deductive, *a priori* manner, seeking to prove the existence of God from the fact that the idea of a perfect being includes the idea of existence. Rationalism and the doctrine of innate ideas are in the background of Descartes' reasoning here. This form of the argument, as indicated above, is acceptable also to a Platonist, merely because for one holding that view, the ideal is by definition the real. For a non-Platonist, or non-rationalist, the Anselmic form of the argument is not fully convincing. Descartes was not a Platonist, and not consistently a rationalist. Therefore he realized the difficulties better than Anselm. He said[120] in Meditation V

> But though, in truth, I cannot conceive a God unless as existing, any more than I can a mountain without a valley, yet, just as it does not follow that there is any mountain in the world merely because I conceive a mountain with a valley, so likewise, though I conceive God as existing, it does not seem to follow on that account that God exists; for my thought imposes no necessity on things . . .

Descartes seeks to answer his own objection by arguing that existence pertains to the essence of God.[121] His usage of the terms essence and existence, is practically identical with the usage of Santayana. However, he never followed through with the implications of this doctrine,—he was not in any sense an epiphenomenalist. In his "Reply to the Second Objections"[122] Proposition I, Descartes argues "The existence of God is known from the consideration of his nature alone . . . necessary existence is contained in the nature or in the concept of God." But I think he never was fully satisfied with this form of the argument.

Descartes' Inductive Ontological Argument

It is strange that any should doubt the fact that Descartes states the ontological argument not only deductively, but also inductively, as an argument from effect to Cause, an argument by an *a posteriori* process. In the "Reply to the Second Objection", Descartes states this inductive argument in so many words:

> Proposition II
>
> The existence of God is demonstrated, *a posteriori* from this alone that his idea is in us.
>
> *Demonstration*
>
> The objective reality of each of our ideas requires a cause in which this same reality is contained, not simply objectively, but formally or eminently (by Axiom V.)
>
> But we have in us the idea of God (by Definitions II and VIII), and of this idea the objective reality is not contained in us, either formally or eminently (by Axiom VI), nor can it be contained in any other except in God himself (by Definition VIII).
>
> Therefore this idea of God which is in us demands God for its cause, and consequently God exists (by Axiom III).[123]

Descartes introduces his propositions and demonstrations by series of definitions, postulates, and axioms, all of which form background material for the propositions and demonstrations as they are developed. It is not necessary to quote all the axioms and definitions to which Descartes refers in his demonstration of Proposition II. Most important of these, however, is Axiom V, which reads as follows:[124]

> Whence it follows likewise, that the objective reality of our ideas requires a cause in which this same reality is contained, not simply objectively, but formally or eminently. And it is to be observed that this axiom must of necessity be admitted, as upon it alone depends the knowledge of all things, whether

> sensible or insensible. For whence do we know, for example, That the sky exists? Is it because we see it? But this vision does not affect the mind unless in so far as it is an idea, and an idea inhering in the mind itself, and not an image depicted on the phantasy; and, by reason of this idea, we cannot judge that the sky exists unless we suppose that every idea must have a cause of its objective reality which is really existent and this cause we judge to be the sky itself, and so in the other instances.[125]

That this is truly a different form of argument from the Anselmic, an argument using the inductive process from effect to Cause, is clear from the nature of the statements themselves. Descartes labels the argument an *a posteriori* one in so many words. It is truly amazing that the fact has not been more widely recognized. Yet the ontological argument is in such disrepute, so many philosophy students and teachers have been told that "Kant settled that long ago," that when one refers to Descartes' inductive form of the argument, incredulity is very generally encountered.

Leibnitz was well informed on Descartes' philosophy. Although he did not credit Descartes' *a posteriori* argument with much value, he shows that he was familiar with it. Of this argument Leibnitz says [126]

> . . . the other argument of Descartes, which undertakes to prove the existence of God because the idea of him is in our soul, and must have come from the original, is still less conclusive [than the *a priori* argument]. For in the first place this argument has this defect, in common with the preceding, that it assumes that there is in us such an idea, i.e., that God is possible. For what Descartes alleges, that in speaking of God we know what we are saying, and that consequently we have an idea, is a deceptive indication, since in speaking of perpetual mechanical movement, for example, we know what we are saying, and yet this movement is an impossible thing, of which, consequently we can *only* have *an apparent* idea. Secondly, this same argument does not sufficiently prove that the idea of God, if we have it, must come from the original.[127]

It will be noted that for Leibnitz, to "have an idea" means to have a *correct* idea. And a correct idea for Leibnitz, an idealist, is an idea corresponding to reality. On the other hand, for Descartes, a dualist, "to have an idea," means what the phrase signifies in common speech. The idea may or may not be clear, and may or may not correspond to reality.

It is clear from Leibnitz' words that he recognized in Descartes' writings an inductive *a posteriori* argument from effect to Cause, starting from the idea of God as empirical data. The fact that Leibnitz thought so little of the argument probably accounts for Kant's ignoring it, but the fact that Leibnitz *noted the existence of the argument* in Descartes adds somewhat to the weight of the opinion that this argument of Descartes ought not to be ignored.

Descartes, of course, does not hold that every idea corresponds to an ontological existent. He says that this is not the case. His position is a very simple one, namely that every idea in the human mind has some cause. The idea of the god Apollo is easy to account for as a composite of ideas developed in common experience. The idea of a dragon, made up of parts of a lion, a serpent, and an eagle, and the ideas of a centaur, a flying horse, etc., all these are causally explicable.

We should not expect the natives of a low flat island in the tropics to have a word in their vocabulary for a snow-capped mountain. If we should discover such a word in common use among them, we should be compelled to infer that someone who had knowledge of a snow-capped mountain had visited their shores. It would be nothing esoteric; it would be a matter of open scientific and empirical investigation, to inquire how such an idea got into their culture.

Descartes is not speaking of merely the idea of any kind of a god, but of the concept of God found in the Judeo-Christian tradition. The notions of incorporeal personality, omniscience without discursive processes, omnipotence without physical force, creation *ex nihilo,* all of these and other concepts to be found nowhere in human cultural history, except in Judaism and its monotheistic derivatives—these concepts are difficult to explain as effects of mere atheous evolution.

Tennant's form of empiricism, however, inconsistently omits the science of historical cultural investigation, and he takes no account of Descartes' statement of the *a posteriori* argument.

Leibnitz on the Anselmic Ontological Argument

Maginnis, the translator of Anselm's *Proslogion* above referred to,[128] summarizes Leibnitz' view of the Anselmic argument as found in Descartes, as follows:

> Leibnitz thinks that Descartes borrowed his argument from Anselm, of whose writings he could not have been ignorant—having studied the Scholastic Philosophy so long at the *College des Jésuits de la Fléche.* He says that the scholastics all misunderstood Anselm's argument, not even excepting their Doctor Angelic; he says that they represent it as a paralogism, but that it is not a paralogism, but only a defective demonstration; that all it wants for its completion is, first to show that the being in question is possible. He thinks it would follow that, if this being is possible, it exists—an argument however which will hold good only of the Deity.

For this statement Maginnis gives the following reference: *Nouveaux Essais Sur l'Entandement Human Liv.* IV. SS7. He should have said Book IV, Chapter X, SS7.

For Leibnitz, this is "the best of all possible worlds." Naturally in the best of all possible worlds, the best or most perfect of all possible beings must exist. It follows that if the best of all *conceivable* beings is proved to be *possible,* i.e., not a self-contradictory concept, he must of course exist.

In his *New Essays*[129] in discussing Locke's Essay on *Human Understanding,* Leibnitz says

> I do not despise the argument invented some centuries ago by Anselm, Archbishop of Canterbury, which proves that the perfect being must exist; although I find that the argument lacks something, because it assumes that the perfect being is possible. For if this single point were proved in addition, the whole demonstration would be complete.

The same theme is pursued in the body of the work.[130] The body of this work is in dialogue form, the characters of the dialogue being Philalethes and Theophilus. Philalethes cites Cicero's argument from *De Legibus,* Book II, Chapter VII, to the effect that the intelligence in us must come from intelligence in the heavens. Theophilus turns from this inductive argument to the *a priori* form of the ontological argument.

> Although I am for innate ideas, and in particular for that of God, I do not think that the demonstrations of the Cartesians drawn from the idea of God are perfect . . . What Descartes has borrowed from Anselm . . . is very beautiful and really very ingenious, but . . . there is still a gap therein to be filled.

Then follows the material summarized above in my quotation from Maginnis.

For Leibnitz' peculiar philosophy, the *possibility* of an idea is of the greatest importance, but it must be remembered that by "possibility" and "idea" Leibnitz does not mean exactly what is usually designated in ordinary discourse. He says[131]

> . . . I have shown how ideas are in us, not always in such wise that we are conscious of them, but always in such wise that we may draw them from our own depths and make them perceivable. And this is also my belief concerning the idea of God, the possibility and existence of which I hold to be demonstrated in more than one way. And the *pre-established* harmony itself furnishes a new and incontestable means of doing so.

Of course Leibnitz' type of idealism, pre-established harmony, is not the same as Anselm's Platonic idealistic rationalism. However, the two systems are very congenial. Leibnitz' view of "the best of all possible worlds" made it necessary for him to demand that possibility, i.e., non-contradiction, be proved, whereas for Anselm possibility was not a conscious problem if only the clear-cut ideas were described.

Leibnitz, like Anselm and Descartes before him, also had room for inductive arguments *a posteriori.* He says[132]

> I believe also that nearly all the means which have been employed to prove the existence of God are good, and might be of service, if we would perfect them, and I am not at

> all of the opinion that we should neglect that drawn from the order of things.

Kant on the Ontological Argument

I have elsewhere[133] discussed Kant's attack upon the traditional theistic arguments. As to the ontological argument, it should be said by way of summary (1) Kant probably knew this argument only through Leibnitz. (2) He did not know the *a posteriori* form used by Descartes. (3) Any argument from effect to cause would be ruled out by Kant's peculiar doctrine of causality and his exclusion of ontological noumena from the field of possible knowledge.

In concluding his direct attack upon the ontological argument Kant says[134]

> And thus the celebrated Leibnitz has utterly failed in his attempt to establish upon *a priori* grounds, the possibility of this sublime ideal being.
>
> The celebrated ontological or Cartesian argument for the existence of a supreme being is therefore insufficient; and we may as well hope to increase our stock of knowledge by the aid of mere ideas, as the merchant to augment his wealth by the addition of noughts to his cash account.

I have not been able to find any reference to Anselm or any trace of direct influence of Anselm in Kant's discussion of the ontological argument.

It is therefore probable (1) that Kant had only a superficial knowledge of Descartes, (2) that Leibnitz had given greatest emphasis to the Anselmic, not the inductive, element in Descartes' material, and (3) that Kant viewed the Anselmic form of the argument not by acquaintance with Anselm, but through Leibnitz' eyes.

Tennant and the Ontological Argument

Tennant several times refers[135] to the ontological argument in a cursory manner, always assuming that of course it is absurdly fallacious. His appendix note[136] on the subject adds little to his remarks which I have here cited. He defines the ontological argument as an argument which holds "that the idea of the most perfect being, and that idea alone, involves the Real existence of its ideal content." But he excludes merely by his own fiat "arguments which turn on the origination or causation of our idea of a perfect being."[137]

Tennant's definition of the ontological argument as argument from the idea of the most perfect being to the existence thereof would conform to accepted usage. It may be urged, however, that he has no logical right to exclude the inductive form. The Anselmic form of the argument takes the idea *analytically,* and seeks to show that existence is a part of the idea. The Cartesian inductive form just as truly argues from the idea to the existence of the perfect being but the latter argument is *synthetic,* like any argument from effect to cause.

The idea of the perfect being could be regarded as a minor premise in a syllogism, the major premise of which would be a proposition somewhat as follows: "All ideas in the human mind may be accounted for by adequate cause or causes." The conclusion of such syllogism would be: "The idea of God may be accounted for by adequate cause or causes." From this conclusion by processes which Peirce would call "abduction", or which have sometimes been called processes of hypothesis, inductive inference is made toward the discovery of the causes, cause, or Cause of the idea of the perfect being.

Thus it appears that the inductive form of the argument would come within Tennant's definition. His exclusion of it seems to me to indicate inadequate consideration of the problem. Tennant lightly brushes off the ontological argument in all its forms, and that without adequate knowledge of the history and the nature thereof.

Teleology, General Approach

By way of general approach to the different forms of the teleological argument, Tennant discusses the attacks upon the argument which suggest that any purposive process discovered in the world may be but a "chance product of mindless agency," an "oasis in a desert of 'chaos'." He admits that when we use the terms, "the world" we refer not only to such portion of the universe as has come within human empirical experience, but also to the unknown. Granted that the unknown world is vast, possibly infinite, nevertheless Tennant holds that it is unreasonable to attack the known from the unknown. Such an attack would involve assumption that the unknown is better known than the known.

Of the allegation that such teleological processes as are known should be interpreted as "natural selection out of random variations," Tennant says that this also

> . . . is but conjecture or appeal to the unknown, and, confronted with the second law of thermodynamics, is overwhelmingly improbable. And if it includes the supposition that even unlimited re-shufflings of matter by mechanical forces can produce minds and personalities in a corner of the universe, it conflicts with knowledge.[138]

We do not claim to have infallible deductive proof that the sun will rise tomorrow morning or that Niagara will not flow back into Lake Erie on the Fourth of July. Such descriptions of universal experience as "the law of gravity," and "the second law of thermodynamics" and "the continuous succession of the equinoxes" *might* indeed be interrupted. Planck[139] says

> The second law of thermodynamics states that there exists in nature for each system of bodies a quantity, which by all changes of the system either remains constant, (in reversible processes) or increases in value (in irreversible processes). This quantity is called, following Clausius, the *entropy* of the system. . . . Since there exists in nature no process entirely free from friction or heat-conduction, all processes which actually take place in nature, if the second law be correct, are in reality irreversible. Reversible processes form only an ideal limiting case. . . . the second fundamental principle of thermodynamics is, like the first, an empirical law, we can speak of its proof only in so far as its total purport may be deduced from a single simple law of experience about which there is no doubt. We, therefore, put forward the following proposition as being given directly by experience: *It is impos-*

> *sible to construct an engine which will work in a complete cycle, and produce no effect except the raising of a weight and the cooling of a heat-reservoir.*

In other words according to all human experience, there is no known physical process in which there is not some gain of *entropy* through heat conduction or friction. Planck makes it very emphatic that "whether reversible processes exist in nature or not, is not *a priori* evident or demonstrable."[140] The point is not that a frictionless material world is a self-contradictory logical concept, but that in all of human experience and experimentation with the material world, no process has ever yet been observed in which *entropy* is totally absent.

Planck says further[141]

> In connection with all objections to the second law, it must be borne in mind that, if no errors are to be found in the line of proof, they are ultimately directed against the impossibility of perpetual motion of the second kind. [i. e., perpetual motion without loss by friction].

Of course for an extreme emergentist, water might suddenly decide to flow uphill. Tennant is an emergentist, but he does not really contemplate such a contingency. For him, the increase of *entropy* in every physical process is a fact observable throughout all human experience. Tennant thinks that this fact makes it improbable that the processes of mere chance would anywhere reverse the progress of *entropy*.

The fact that human experience is only a microscopic part of the universe does not make it probable that what we call natural laws, such statistical observations as the law of gravity and the second law of thermodynamics, are *not* everywhere applicable.

Furthermore, the very essence of the teleological argument is the idea that design produces *value*. The observation that teleological processes are only small in bulk in the total universe is irrelevant when value is kept in mind. Value is not proportional to bulk. Tennant says, "magnitude and worth are incommensurable."

Stages in Teleological Argument

Tennant proposes to develop his teleological arguments in several different stages: (1) a consideration of the intelligibility of the world; (2) an investigation of the internal adaptiveness of organic beings; (3) a study of the fitness of the inorganic world to minister to life; (4) observations based upon aesthetic values; (5) a study of the world's instrumentality for the realization of moral ends; and (6) the inter-adaptiveness of the five fields referred to.

(1) *Rational Mind and the Ontal World*

The first type of teleology which Tennant presents is that of the correlation between the ontological world and the rational mind, correspondence between intelligence and the intelligible. Tennant finds data for teleology under this heading in only two respects. In the first place

> . . . the primary epistemological contribution to teleological reasoning consists in the fact that the world is more or less intelligible, in that it happens to be more or less a cosmos, when conceivably it might have been a self-subsistent and determinate 'chaos' in which similar events never occurred, none recurred, universals had no place, relations no fixity, things no nexus of determination, and 'real' categories no foothold.[142]

Tennant calls the mere fact of recurrences in nature a "logico-mathematical order." Supposedly there might have been no correspondence at all between thought and things if there had not been similarities and recurrences.

(The same argument is found in Peirce's writings. See especially Buchler's collection, pp. 212 ff.)

Secondly, Tennant suggests that teleology may be indicated

> . . . in that Nature evokes thought of richer kind than is involved in scientific knowledge, and responds to thinking such as is neither logically necessary nor biologically needful, thus suggesting a Beyond . . .[143]

In rejecting rationalism in connection with the phase of teleology now under consideration, Tennant takes practically a *sensationalistic* view and forgets his best arguments against sensationalism which he advanced in his epistemology in Volume I of his *magnum opus.* He says here in Volume II

> . . . if our primary ideas of objects are but images of such objects defecated to pure transparency, or are but elements of the objective matter of perceptual experience isolated for thought by selective and restricted attention, then that they apply to the objects from which they have but been abstracted is no wonder to be supernaturally accounted for.[144]

It is not of the genius of Tennant's epistemology to hold that our ideas of objects "are but images of such objects" or that they are "but elements of the objective matter of perceptual experience . . ." This would make the mind a *tabula rasa* indeed.

In this inadvertent relapse into sensationalism, Tennant unnecessarily attacks Descartes. He says

> Descartes accounted for the marvel, as it seemed to him, of this correspondence by invoking, as its necessary cause, the veracious Deity, whose existence he sought to prove—almost superfluously, on his own presuppositions—by other lines of reasoning. If a subject's 'ideas' were as disparate from percepts and from external Objects as Descartes supposed, each class forming a closed system independent of the other, there might be something to be said for the invocation of divine agency to explain the elaborate correspondence between the two systems.[145] . . . Descartes needed . . . [the idea of God] to secure the adjustment of thought to being.[146]

Tennant is not at all careful to give references for his quotations and allusions to important historical writers. It is possible that Tennant has in mind some obscure passages in Descartes' writings which I have overlooked. I think not, however, for not only do I *not* find any such teaching in those sections of Descartes' writings in which related subjects are discussed, but on the contrary I find repeated statements[147] which cannot be reconciled with the view which Tennant ascribes to him. In axioms III, IV and V[148] from the *Reply to the Second Objection,* Descartes unequivocally assumes as axiomatic the causal relationship between objects and ideas. I do not believe that it ever occurred to Descartes to question inter-action between thought and things.[149]

If Tennant is in error in his interpretation of Descartes, and

I think he is, it must be admitted that Windelband makes a similar mistake. He says[150]

> The nature (natura) of man, he [Descartes] teaches, consists in the *inner union of two heterogeneous substances,* a mind and a body, and this marvellous (i. e., metaphysically incomprehensible) union has been so arranged by God's will that in this single case the conscious and the spatial substances act upon each other.

I do not believe that Descartes regarded mind and body as "heterogeneous", if heterogeneity implies any difficulty or problem whatsoever in the concept of interaction. Descartes of course taught that mind and body are distinctly different kinds of substance, and so heterogeneous in that sense. The perfectly homogeneous cannot be conceived as interacting. Windelband, in saying that interaction is established "by God's will," is of course within the truth, for Descartes was a creationist, and believed that all created substances are so created as to interact. But Windelband errs in supposing that, for Descartes, mind-body interaction was any *special* marvel.

Tennant, in saying that Descartes ascribes the interaction between mind and body to God's veracity, is clearly confusing two different problems. Descartes indeed does appeal to the veracity of God,[151] but this appeal to God's veracity is introduced, not at all to solve the mind-body interaction problem, but to solve the problem of confused and erroneous ideas, as contrasted with clear and true ideas. Descartes' conclusion is that "God, who is wholly perfect and veracious," is the source of the ideas which are clear, and not self-contradictory, and that confusion and lack of clarity are due to sin.[152]

Descartes was not without his own particular theory of interaction between mind and body. In *Meditation* VI[153] he says

> . . . the mind does not immediately receive the impression from all the parts of the body, but only from the brain, or perhaps even from one small part of it, viz., that in which the common sense (*sensus communis*) is said to be . . .

His much quoted doctrine that the pineal gland, in the center of the brain, is the seat of operation of the soul, was brought forward in his last published work, *Passions de l'âme*.

> The soul from its seat in the gland in the middle of the brain spreads abroad throughout the body by means of the spirits, nerves, and even blood, which last, participating in the impressions of the spirits, can carry them by the arteries into all the members.[154]

It is evident therefore that Tennant is wrong in thinking that for Descartes interaction between mind and body was in any sense miraculous or other than that which would normally be expected.[155]

It is unfortunate that Tennant thus misread Descartes, for Descartes' dualistic interactionism should have been quite congenial to Tennant. Descartes[156] denies sensationalism, as Tennant also does in his principal treatment of epistemology. Descartes believed that the ontal world is of such a nature as to *cause* our ideas of the same. This is exactly Tennant's position.

Tennant makes a genuine contribution in pointing out that, although ontal-epistemological teleology is very modest in its claim, yet it is distinctly significant that the ontal world is of such a nature as to exhibit some degree of regularity and recurrence and thus to furnish the occasion for certain mathematical ideas.

(2) *Teleology in Organisms*

Tennant's second type of teleology is found in the organic world. It is held that mechanistic principles, which Tennant enumerates as "least action, shortest path, dissipation of kinetic energy, and so forth," eliminated the possibility of matter of itself forming organisms. However, there is a tendency, he says, in scientific circles, "to seek an organic conception of the physical atom, . . . rather than a mechanical conception of the organism." Nevertheless, he argues that "at the molar and phenomenal level of description," the type of interpretation which is irreducible to rigid mechanism is provided by "mentality". There is no evidence of mentality in plants. Tennant thinks that organismic activity, as in plants, where there is no macroscopic evidence of mental behaviour, is as yet a mystery to science. He suggests

> It may be that only in metaphysics such as spiritualistic monadism, or hylozoism of the microscopic order, is a natural explanation to be found.[157]

If the spiritualistic constitution of matter is thus admitted, Tennant thinks that Darwinism has eliminated all argument from details of adaptation, such as those described by Paley. Thus Paley's *Evidences*[158] is dropped from Tennant's theistic argument as unnecessary baggage.

Tennant indicates here, as elsewhere, that organismic phenomena in nature may be explained as *Zweckmässigkeit ohne Zweck,* a concept which seems to be self-contradictory in this context, as it does in the context where it previously occurred.

All the evidence for teleology that Tennant derives from organic phenomena is the fact that mere naturalistic vitalism or spiritualism does not account for "the arrival of the fit," and the negative fact that it does not eliminate external intelligence guiding the over-all process.

Pursuing Tennant's lead beyond Tennant's position, one might drive the induction to a stronger conclusion. The organic world exhibits teleology both in detail and in its over-all aspects. If we focus upon the generalities of the organismic process of nature, we do not by any means eliminate the details or make them less impressive.[159] The teacher may stand before a class and call attention to the desk as a manufactured article, exhibiting some degree of designing intelligence. If it could be proved that the desk had been produced by a germ or seed, and that finished desks are regularly picked from trees growing from such a seed, the evidence of intelligence in detail would not in the least be decreased, but to it would be added the evidence of astonishing design in the over-all process. Instead of taking organic evolution as the significant horizon, one might take a far larger *Gestalt,* namely the history of all organisms, especially the history of the human race. Viewing organic processes thus in the widest possible horizon, detailed evidences such as Paley advanced need not have been disregarded by Tennant, but are the rather set off to better advantage in their larger cosmic frame.

(3) *Teleology in the Inorganic World*

Tennant as a physicist is at his best in his teleological argument from inorganic nature. He says

> Although teleologists in the past have generally set out from adaptations in organisms, it has occurred now and again to a theistic apologist . . . that adaptation in inorganic Nature . . . should more unequivocally bespeak external design. The teleologist of today, however, would rather call attention to the continuity of apparent purposiveness between the two realms, or to the dependence of adaptation in the one on adaptiveness in the other. . . . and more recently it has been argued . . . that the inorganic environment is as plainly adapted to life as living creatures are to their environment. The vast complexity of the physico-chemical conditions of life on the earth suggest to common sense that the inorganic world may retrospectively receive a biocentric explanation . . . [it is] as if that result were an end to which the inorganic processes were means.[160]

Tennant[161] quotes Eddington in support of the view that few if any other heavenly bodies are capable of supporting life. As to "chemical and physiological conditions," Tennant says

> Science pronounces the globes which satisfy these conditions to be, in all probability, very few; while organic life involving only inorganic chemistry, organisms adapted to the temperature of the burning fiery furnace, and so forth, are notions that hardly lie within the sphere of scientific imagination. If anyone likes to maintain that the Creator of the starry heaven is "mindful" *only* of man, neither will science accuse him of grotesque exaggeration nor will theism need to hope that he is absolutely accurate.

With reference to the argument that the difference between organic and inorganic chemistry might be irrelevant, and that in another kind of world another kind of life might have been sustained, "silicon perhaps replacing carbon in another kind of protoplasm, and iron replacing calcium phosphate in skeletons," Tennant answers

> . . . the point is that, for the existence of any forms of life that we may conceive, the necessary environment, whatever its nature, must be complex and dependent on a multiplicity of co-incident conditions, such as are not reasonably attributable to blind forces or to pure mechanisms.[162]

Tennant specifies details in which the adaptation of the inorganic world for the organic, is to be discovered.

> The fitness of our world to be the home of living beings depends upon certain primary conditions, astronomical, thermal, chemical, etc., and on the coincidence of qualities apparently not causally connected with one another, the number of which would doubtless surprise anyone wholly unlearned in the sciences; and these primary conditions, in their turn, involve many of secondary order. Unique assemblages of unique properties on so vast a scale being thus essential to the maintenance of life, their forthcomingness makes the inorganic world seem in some respect comparable with an organism. It is suggestive of a formative principle.[163]

But, Tennant thinks, the formative principle cannot readily be conceived on the analogy of life and mind within organisms, because the inorganic world at the molar and phenomenal level is devoid of life and at any level is "devoid of intelligence and foresight."

Tennant has always in the background of his thinking the concept of matter as constituted of spirit. It may be, he thinks, "unorganized spirit," or "conative monads"; but for the "pluralistic spiritualist," these monads are "no more capable of conspiration than are particles." Thus Tennant thinks that the spiritualistic view of matter to which he is inclined, is no more capable of explaining cosmic teleology than the plain materialistic view, which sought to explain the same by "the fortuitous concourse of atoms." It would seem to me that if this is all that the theory of the spiritualistic constitution of matter can accomplish toward teleology, the theory,—entirely unsupported by data,—might be abandoned for simple perspicuous dualism.

The notion has been suggested that our universe is the result of a process analogous to the "survival of the fittest" and that "natural selection" has eliminated all other chances but the one we now have. Tennant answers that such a view is entirely without support and that

> Presumably the world is comparable with a single throw of dice. And common sense is not foolish in suspecting the dice to have been loaded. [Tennant had just stated above]. Such is the teleological appeal of this field of facts to common sense reasonableness or mother-wit, . . . [that it] regards the 'probability', that the apparent preparedness of the world to be a theatre of life is due to 'chance', as infinitesimally small.[164]

But in opposition to teleology thus indicated, Tennant recognizes the argument from the mathematics of chance. It is said

> . . . a remarkable world might result from 'one throw' in spite of there being indefinitely large chances against it, just as double sixes may be cast in one's first toss of two unloaded dice, although the adverse odds are thirty-five to one.[165]

The argument which Tennant is here answering has been stated by Professor Sidney Hook.[166]

> . . . probability judgments can only be made of series of events which contain instances of the occurrence and *non-occurrence* of the character under investigation, otherwise the phrase "equally likely" becomes meaningless. And for our purposes, most important of all is the conclusion that the arrangement of nature or the order of the universe can never become the subject of a probability judgment, since there is only one universe with which we are acquainted and not a series of them. The subjective theory of probable inference is the Achilles' heel of the argument from design. It therefore becomes meaningless to ask questions about the possibility or necessity of the universe as a whole, to affirm with Leibnitz that this is the best of all possible worlds or to deny it with Voltaire. From the uniqueness of the world nothing can be inferred for no matter what the architecture of the world order would be, it would still be unique. "The relative probability of this or that arrangement of nature," says Peirce, "is something we should have a right to talk about if universes were as

> plentiful as blackberries . . ." (Quoted from Peirce's *Chance, Love and Logic,* p. 98).

Professor Hook has made the mistake of confusing two very different and distinct usages of the word "probability". Probability is sometimes used by Peirce and others to mean mathematical statistical probability, as when we say the probability of throwing double sixes is 1/36. In this sense, of course, it is absurd to speak of the probability of the occurrence of a unique event. This is all that Peirce meant in the words quoted from him by Sidney Hook. The words in their context are as follows:

> The relative probability of this or that arrangement of Nature is something which we should have a right to talk about if universes were as plentiful as blackberries, if we could put a quantity of them in a bag, shake them well up, draw out a sample, and examine them to see what proportion of them had one arrangement and what proportion another.[167]

Peirce, in the immediate context, suggests that it would be far better, instead of the word "probability," to use the phrase "relative frequency," in any such statistical statements.

The fact that Professor Hook has entirely misconstrued Peirce's argument is revealed in an examination of Peirce's article entitled "Probable Inference" in Baldwin's *Dictionary of Philosophy,* Vol. II, p. 355. In this article, under a sub-division, which Peirce calls "presumptive inference," he specifically gives instances of probable inference from unique facts to presumed causes. He says

> As an example to fix ideas, suppose that I am reading a long anonymous poem. As I proceed, I meet with trait after trait which seems as if the poem were written by a woman. . . . the principal rule of presumption is that its conclusions should be such that definite consequences can be plentifully deduced from it, of a kind which can be checked by observation.

Tennant[168] abundantly covers the situation in a brief word.

> . . . it does not affect the teleologist; for, when he calls coincidence on the vast scale improbable, he has in mind not mathematical probability, or logical relation, but the alogical probability which is the guide of life and which has been

> found to be the ultimate basis of all scientific induction.[169]

Descartes has this type of probability in mind when he says in his *Discourse on Method*

> . . . since in action it frequently happens that no delay is permissible, it is very certain that, when it is not in our power to determine what is true, we ought to act according to what is most probable.[170]

This is the type of probability referred to in the famous printer's type illustration used by many[171] theological writers. The earliest form of this argument which I have been able to discover is quoted by none other than Peirce[172] from Archbishop John Tillotson, who lived from 1630 to 1694. Peirce says

> If anyone has ever maintained that the universe is a pure throw of the dice, the theologians have abundantly refuted him. "How often," says Archbishop Tillotson, "might a man, after he had jumbled a set of letters in a bag, fling them out upon the ground before they would fall into an exact poem, yea, or so much as make a good discourse in prose! And may not a little book be as easily made by chance as this great volume of the world?" The chance-world, here shown to be so different from that in which we live, would be one in which there were no laws, the characters of different things being entirely independent; so that, should a sample of any kind of objects ever show a prevalent character, it could only be by accident, and no general proposition could ever be established. Whatever further conclusions we may come to in regard to the order of the universe, this much may be regarded as solidly established, that the world is not a mere chance-medley.

This is Peirce's argument, and yet Professor Hook thinks he can quote Peirce as opposed to any inference drawn from the nature of the world! If Professor Hook's argument were valid, then all scientific reasoning would be futile, all scientific conclusions in particular cases, at an end. True, universes are not as numerous as blackberries, but neither are Parthenons; yet it is reasonable to conclude from the nature of one Parthenon that it must have been built by rather clever architects!

Professor Parkhurst,[173] in her prologue entitled "Art as Man's Image," takes the position that human art as a whole[174] is of such a nature that the character of humanity can be inferred from it. She says

> So completely, indeed, does the correspondence obtain between inner and outer—between man's nature and the products of his creation—that from a knowledge of either, one should be able to infer the character of the other.

It is as reasonable to conclude from the vast amount of teleological data in the universe that the universe has a purposive nature, as it is to conclude from a vast amount of physical data that the universe has certain physical characteristics. Tennant says

> Science has been so continuously successful in its venturesomeness that the wise-head, logic, now lets it pass without remonstrance; but theology, though arm in arm with science, receives a reprimand.[175]

This section of Tennant's work, coming as it does from one who was a physicist before he became a philosopher, should not lightly be brushed aside. The inorganic universe seems to this physicist to be so collocated as to have the appearance of having been *intended* to sustain life on a little out-of-the-way planet called Earth.

(4) *Teleology in Aesthetics*

Tennant's fourth instance of teleology in the universe is in the field of aesthetics. The world as observed "is a bearer of values." It thus shows an "affinity with beings such as can appreciate as well as understand."

Tennant by-passes the various theories of aesthetics, a field which he describes as "scientifically trackless." He says

> Whether the adaptation to our faculties, involved in aesthetic estimation, be, as Kant thought, formal and the same for all, though subjective; whether it be subjectively constituted and not the same for all; whether beauty be wholly Objective and literally intrinsic to Nature: these controversial questions are here immaterial. For the doctrine that aesthetic value is constituted by feeling does not imply that the feeling is not objectively evoked, as if we could see beauty when and where

> we chose. It has a parallel in the phenomenalist theory of knowledge: that is to say, beauty is not created by minds out of nothing, but is subjectively made out of *rapport* with the ontal.[176]
>
> That natural Objects evoke aesthetic sentiment is as much a fact about them as that they obey the laws of motion, or that they have such and such chemical composition.[177]

Tennant warns against a mere appeal to detail on the analogy of human art. Whatever particular artifact may command our attention, we do not necessarily ascribe its artifice to individual intelligent purpose, if we know assembly line methods.

We do not regard each particular snowflake as an artifact; we are quite familiar with the fact that a globule of water suddenly turning to crystal while floating freely in the atmosphere with nothing to interfere with its crystallization uniformly in all directions, will inevitably crystallize in a hexagonal pattern. The minute crystals in each snowflake being innumerable, and the symmetrical combinations of so many hexagonal crystals being beyond all calculation, it is not surprising that the patterns exhibited by snowflakes are of a practically infinite variety. We do not need to postulate a cause more complicated than the fact that water crystals are hexagonal and that snowflakes are formed by globules of water floating freely in the atmosphere, in order to have a reasonably adequate explanation of the beauty of innumerable snowflake patterns.

A kaleidoscope is a toy with which not all children are familiar. It is simply a cylinder in which are three plain mirrors running lengthwise, the mirrors facing each other so that the inside space is a triangular prism. One end of the cylinder is closed by two discs of ground glass, between which is a small chamber in which are a hundred or so bits of brightly colored glass broken in odd shapes. The other end of the cylinder is closed with an eye piece, in the center of which is a small peek hole.

Now hold the kaleidoscope to the eye, direct the opposite end toward the light, and behold! A marvelously beautiful stained glass window in a perfectly symmetrical hexagonal pattern! What artist made the pattern?

But jar the kaleidoscope or turn it ever so slightly, and again behold! Another stained glass window equally beautiful, equally perfect in its hexagonal symmetry. For every slightest turn of the toy, a new and perfect work of art is produced! As a child I tried to copy the patterns so that they would not be "lost." Of course the oldsters know that each particular pattern is not to be explained as an artifact in itself.

Professor Parkhurst[178] recognizes teleology in individual works, and in individual fields of art. She says

> It is in . . . [architecture and music] that man draws nearest to a vision of the ultimate metaphor; it is in these that he very nearly accomplishes the feat of giving utterance to the unutterable.

But so far as human art as a whole is concerned, it is to be completely explained by the correlation between man and his artifacts. *The universe which sustains both* has no teleological significance, according to Parkhurst.

Professor Parkhurst says[179]

> Between the brute universe from which man takes his origin, and art which is his product, intervene the body and the mind, the flesh and spirit of man himself.

And again she teaches[180]

> To all things human, to all things earthly, we are then absurdly but fortunately adjusted. The accident—for such it must be—of a blue sky and green vegetation, of white snow and a sea whose tides are semi-diurnal, we are not tempted to wonder at.

We should not object to the phrase "brute universe" if these words merely meant that the universe is not derived from reason *alone,* but also from a creative act of will of which the *ratio* was not the only *causa.* However, in Professor Parkhurst's work, "the brute universe" would seem to mean "the universe devoid of all intelligent purpose." The *adjustment* between man and beauty, is a mere *accident* and is essentially *absurd.*

But one need not see it so. A grandfather does not now regard the children's kaleidoscope as producing beauty by accident, or as in itself absurd. A kaleidoscope is a very clever toy. Oldsters do not see the wonder in the individual symmetrical patterns as children do, although the patterns are indeed beautiful. What they admire is the cleverness which designed the arrangement of the three mirrors, each one facing the other two, so that whatever the shapes and arrangements of the odd bits of brightly colored glass, a perfect hexagonal pattern results.

Similarly, we admire the beauty of snow crystals, not merely for their enchanting individual patterns, but for the entire teleology of process by which the deeply aerated blanket of snow and ice preserves life by covering the land and lakes of the temperate and frigid zones.

Truly, as Tennant says

> The aesthetic argument for theism becomes more persuasive when it . . . appeals to alogical probability. And it becomes stronger when it takes as the most significant fact not the forthcomingness of beautiful phenomena [in detail and in particular] but what may be called, with almost negligible need of qualification, the saturation of Nature with beauty.[181]

Philosophies which interpret the beauty of the world as ultimately accidental and absurd, take no adequate account of the fact of value. The aesthetic is not merely a surprising adjustment between man and his artifacts, and man and nature. The aesthetic is, over and above all mere adjustment, a *value* of which empirical science ought to take account. Nature is of such a character as to produce that value.

Tennant's theistic teleology of aesthetics issues in a theistic humanism. He says

> Theologically expressed, this [teleology of aesthetics] is the belief that Nature is meaningless and valueless without God behind it and man in front; and that is what teleology in its comprehensiveness, and the aesthetic argument in its particularity, endeavor to establish.[182]
>
> If nature's beauty embody a purpose *of* God, it would seem to be a purpose *for* man, and to bespeak that God is "mindful of him."[183]

It may not be out of place to suggest that this humanistic teleology of aesthetics, "man out in front," is not as consistent as the

Christo-centric aesthetic teleology to be found in the Epistle to the Hebrews, the Epistle to the Colossians and in the Fourth Gospel. Tennant is a Sabellian, not an Athanasian Trinitarian. He has no room in his philosophy for the

". . . Logos . . . with God, and God." He does not accept the "Unique deity who is the most intimate fellowship with the Father." Tennant's philosophy does not comprehend the "Son," who is "the brilliance of his glory and the exact likeness of his substance." The "One" in whom dwells "all the fulness of deity in bodily form."

According to the Judeo-Christian tradition, the aesthetic teleology of the world cannot be explained by positing humanity as its final cause. Rather it is the Son of Man to whom all glory[184] is directed. Teleology is truncated without the historical incarnation, "God manifest in the flesh," the One of whom it is said, "All things were made for him." A well-rounded philosophy of aesthetics demands a theistic goal as well as a theistic source. The glory of man is not enough; "the heavens declare the glory of God."

The superiority of theo-centric aesthetics is illustrated in the following excerpt from Kingsley's *Westward Ho!*[185] The older brother in the story illustrates rationalistic idealistic cosmic teleology, not the anthropocentric view of Tennant; but the younger brother's remarks admirably set forth the view of aesthetics which would more fully round out Tennant's teleology.

> 'Look, Frank, that's a colibri' [a humming bird]. . . . Frank watched solemnly a while and then—'*Qualis Natura formatrix, si talis formata?* Oh, my God, how fair must be Thy real world, if even Thy phantoms are so fair!'
>
> 'Phantoms?' asked Amyas, uneasily. 'That's no ghost, Frank, but a jolly little honey-sucker, with a wee wife, and children no bigger than peas, but solid greedy little fellows enough, I'll warrant.'
>
> 'Not phantoms in thy sense, good fellow, but in the sense of those who know the worthlessness of all below!'
>
> 'I'll tell you what, brother Frank, you are a great deal wiser than me, I know; but I can't abide to see you turn

> up your nose as it were at God's good earth. See now, God made all these things; and never a man, perhaps, set eyes on them till fifty years agone; and yet they were as pretty as they are now, ever since the making of the world. And why do you think God could have put them here, then, but to please Himself?'—and Amyas took off his hat—'with the sight of them. Now, I say, brother Frank, what's good enough to please God, is good enough to please you and me.'
>
> 'Your rebuke is just, dear old simple-hearted fellow; . . . I presume at moments, sinner that I am, to be more dainty than the Lord himself. He walked in Paradise, among the trees of the garden.'

Are we degrading man in defending the Judeo-Christian tradition which makes God the final cause of all the beautiful? By no means. Human aesthetic enjoyment centered in humanity alone, is an anti-climax without hope of any cosmic teleology. If only in our little out of the way corner of the universe there is appreciation of the beautiful, then indeed aesthetics might be regarded as an absurd accident, but on the Biblical view, if the incarnation means that humanity is visited by, and included in the cosmic redemptive program, then the broken fragments of the beautiful which we truly do enjoy, may be taken as signs and promises of the cosmic beauty with which the Son of God is glorified. This is truly the significance of the words of St. Paul, "You are completed in Him." Such a view would better fulfill Tennant's purpose.

(5) *Ethical Teleology*

Tennant's moral argument for the existence of God must be presented briefly, first because a satisfactory treatment of this section, comparing it with important literature in the field, and endeavoring to show and supplement its weaknesses, would be a task of such proportions as to render the production of this thesis a lifework in itself, and secondly, because there will be an opportunity to discuss Tennant's views in the field of ethics when his chapter on "The Problem of Evil" is under consideration.

Tennant first of all rejects certain views which would argue *a posteriori* for the existence of God from the fact of the existence of moral ideals beyond the range of evolutionary development. It has been alleged by some,[186] among whom Tennant (p. 94) names A. R. Wallace and Lord Balfour, that natural selection can account for moral ideals which have to do with survival, but can never account for the existence of moral ideals of a higher order such as the ideal of self-sacrifice. Tennant rejects these arguments entirely and holds that evolution is sufficient to account for moral ideals of the higher order as well as ideals which have to do with mere survival.

He next attacks views which argue *a priori* for the existence of God from the nature of ethical principles as such. Tennant holds that existential truth cannot be deduced from ethical principles.

In a brief page and a half[187] Kant's ethical argument is unsympathetically dismissed. It would be profitable at this point to plunge into an excursus in defense of Kant's argument, especially in his *Critique of Practical Reason,* but such a study must be postponed for the present. Tennant concludes his discussion of this argument of Kant's with the words

> Lastly, if the *summum bonum* has its possibility of realization guaranteed by the concept itself, Kant in principle employs the ontological argument in ethics after demolishing it in theology.[188]

This is superficial and unfair. Kant did not hold that the *summum bonum* guarantees anything in the sense in which he was dealing with theories of proof in the *Critique of Pure Reason*. His argument is only to the effect that faith in God is a reasonable postulate, necessary for the conservation of moral values, and probably true.

Two more views based upon idealistic assumptions of the existence of Platonic universals, or of Berkeley's principle *esse est intelligi,* are next presented and rejected. Ritschl's doctrine of ethics based upon value-judgments, is rejected in a footnote, on the ground that if God is held to be more than a mere ideal, the methods of existential knowledge must necessarily be employed, and value-judgments are thus shown to be inadequate.

Professor Sorley's view as given in his *Moral Values and the*

Idea of God, is favorably presented.[189] According to this view moral values are said to subsist ultimately only in persons. This fact does not in itself prove the existence of a personal God, but moral values are said to "supply the coping-stone of a cumulative teleological argument for theism."

Tennant's own view is not truly an argument for theism. "Nature, then, has produced moral beings," he says,[190] therefore nature is teleologically constituted toward moral ends. But Tennant has already rejected the notion that the existence of moral ends is evidence for theism. Of ethical principles Tennant says

> It is assumed here . . . that our ethical principles are general rules for the guidance of human wills to human ends, owing their significance to the developing society in which they emanated, and presupposing specific values involving human interests, rather than *a priori* forms, or unconditionally valid propositions about indefinables, or [it is assumed] that ethics is as much an affair of alogical valuations as of abstract principles and laws of pure reason.[191]

Tennant answers Huxley's argument against cosmic ethics, as given in the latter's Romanes Lecture, by showing that moral beings have arrived; which fact, he thinks, proves that *nature,* which, "for all we know, may be possessed of a power to make all things new," has been responsible for the production of the moral beings such as they are. But it may be asked, what more could any of the present-day anti-theistic naturalists ask?

In my *What is God*[192] I presented the moral argument under the heading of an inductive (abductive) question, "What is the explanation of morality?" I there showed that the great philosophies of ethics such as hedonism, intuitionism, legalism, perfectionism, etc., have all led to paradoxes in the elaboration of their supreme norms. But in each of these great historical philosophies of ethics, if the theistic imperative be postulated as the supreme norm, the norm previously regarded as supreme falls into its place harmoniously as a subordinate norm or goal in a well-rounded system in which the paradox has been resolved. This fact leads to a probable inference that the postulation of the theistic imperative may be regarded as correct. To rewrite that entire section of my book, filling in a far greater wealth of historical detail and critical analysis, would not be irrelevant at this point in the study of Tennant; but again such an excursus must be postponed. I believe it can be proved that, just as the postulation of the Copernican system resolved the paradoxes in the explanations of previously observed phenomena, so the theistic postulate and the acceptance of the theistic imperative, resolve the paradoxes of the great historical philosophies of ethics, and harmonize the important truths which these systems contain.

Tennant fails to go into the history of ethical philosophy, and neglects his contemporaries also. A. E. Taylor's *Faith of a Moralist,* (Gifford Lectures for 1926 and 1928) was published in 1930, and Taylor's work was well known in British philosophical circles as well as in America, as a statement of the moral argument for theism, but Tennant makes no reference to his views.

In concluding the discussion of Tennant's moral argument for theism, it must be pointed out that here, even more than in his aesthetic argument, he has surrendered the case to the naturalists.

His conclusions would have been different if he had taken into account the most conspicuous moral fact in the history of our civilization, the cross of Christ. It does not matter what prudish embarrassment the mention of the incarnation and the cross may produce, no empirical philosophy has covered its data if it leaves out significant facts in the history of the field under investigation. Reject, or accept, or explain as one may, the crucifixion of Jesus has produced ethical effects in the civilization to which we belong which cannot be ignored in any scientific discussion of the field of ethics. The moral argument for the existence of God must include some reaction to the concept of God in the flesh having died for our sins.

(6) *Synthetic View of Instances of Teleology*

Tennant's sixth division of cosmic teleology begins with a summary of the five points previously presented. The summary does not add materially, but the synthetic view of the arguments is valuable.

> The greater strength claimed for the newer argument consists in its exhibition of the interconnexion and reciprocal adaptation between systems of fact which used to be treated as if isolated.[193]

The anthropocentric character of teleology as Tennant views it, is strongly emphasized.[194] The theistic implications of teleology are indicated as follows:

> Further back than a creative Spirit it is neither needful nor possible to go. But further back than the world we can and must go, because the notion of a non-intelligent world that produces intelligent beings and makes itself intelligible, that can have no purpose and yet abundantly seems to bespeak one, and so forth, is not the clearest and most reason-satisfying conception that our minds can build wherein to rest.[195]

Tennant concludes his cosmic teleology with a discussion of the question in what an end or purpose, as attributable to Deity, may consist. Human purpose, says he, involves

> (1) The pre-conceived idea of a situation to be reached,
> (2) Desire for that situation because of its value to the agent,
> (3) The use—in general—of means for the attainment of it,
> (4) The actualization—generally by stages—of what was contemplated in thought and striven for.[196]

Of these elements in human purpose, (1) and (4) involve the idea of temporal succession. It is suggested that

> . . . the purposiveness of the world . . . [may] consist in its being an organic system, or one in which the natures and interconnections of the parts are determined by the whole, and in its being an expression of intelligence but not an actualization of a pre-existent plan.[197]

Tennant does not commit himself to this interpretation and admits that it may involve in addition to the abandonment of the time concept, the abandonment of the thought of the use of means to ends, which would eliminate all the elements of purpose as known to humanity. Tennant postpones to a later chapter the question of time[198] in divine purpose.

Of the second element (2) enumerated above, Tennant insists that

> In whatever sense the world may be said to embody divine purpose, the least that can be meant is that the world contains what is of worth to the Supreme Being.[199]

On point (3) Tennant is non-committal and promises a later[200] discussion of the question whether purpose for God would involve the use of means to ends and stages in processes.

On the further question whether the purposes of God must be conceived as complete or incomplete, Tennant takes the Pelagian position that "conative creaturely activity may either co-operate or clash." Divine purpose is said probably to be non-eschatological so that "the process itself may constitute the end." And the "asymptotic attainment of ethical perfection, and the ideal consummation," coupled with "progressive becoming throughout all reaches and domains of the universe," are considered as its probable "ultimate essence." Thus a goal of history is made asymptotic.

Tennant concludes his chapter with his main theme

> . . . teleology is, therefore, a development from science along its own lines, or a continuation, by extrapolation of the plotted curve which comprehensively describes its knowledge.[201]

By way of criticism in summary of this section, it may be suggested that (1) anthropocentric teleology is of the nature of anticlimax. For God's cosmic purpose to be directed ultimately in and for and toward humanity as such, humanity, merely in itself, would seem to be an inconsistent goal.

To find the teleology of mankind fulfilled in the redemptive program of a Divine-human person, is a concept more consistent with the theism which Tennant seeks to defend. It may be further suggested that (2) the concept of the attainment of an eschatological goal is a more probable and a more consistent interpretation of the cosmic data than the asymptotic approach to such goal. Such a goal (a) involves the complete conquest of all moral evil at some eschatological time. Such a goal (b) need not be conceived as static, but may involve the unfolding of new vistas, even after the complete conquest of moral evil.

The Nature of God

After having established that

> . . . the multitude of interwoven adaptations by which the world is constituted a theatre of life, intelligence, and morality, cannot reasonably be regarded as an outcome of mechanism, or of blind formative power, or of aught but purposive intelligence . . .[202]

Tennant raises the question of the nature of the purposive intelligence to which probable inference has thus been made. He makes it clear that he is now engaging in "exposition of a demonstratum," not "proof of a demonstrandum." Admitting the use of the word, God, as having been adopted from religious institutions, Tennant seeks to avoid all the implications of this word beyond what he believes his empirical argument has hitherto established. Cosmic teleology has not yet shown that God is infinite or omnipotent, nor has it proved as yet that God is one and not many.

Creation

On the positive side Tennant holds that cosmic teleology has led to a reasonable inference of the existence of a Designer of the universe. This further implies a Creator. The Designer indicated in cosmic teleology, says Tennant, "could not be its Architect without being its Creator," since "the general scope and trend of the cosmic process was implicit in its 'primary collocations'."

> When man converts clay into bricks, and bricks into a house, he is, according to science, merely altering the configurations of particles of some kind; but if a demiurge arranges particles so that of themselves they shall build a cosmos such as we have found our world to be, providing for the necessary epigenetic 'emergences' throughout its ramifying and interlacing tissue, he must be credited with the initial *determination* of the natures of his particles, and not

> merely with the collocation of them, so that this world and no other should be evolved from them. That determination can only be creation.[203]

Tennant denies "ancient dualism" (not the type of dualism defended here) which postulated a self-subsistent, *hyle,* governed by *anagke* and he supports the doctrine of "creation out of nothing."[204]

Tennant makes it plain that the doctrine of creation distinguishes theism from doctrines of emanation, or of pantheism or absolute monism, or any system or theory, "according to which the derivation of the many from the One is non-volitional." Things are " 'planted out' as *onta* other than the Creator."[205]

Although the doctrine of creation out of nothing may be in itself inexplicable, yet Tennant holds that it is no less explicable than any conceptions which might be substituted for it, "volitional creation at least minimizing the inexplicability of things . . ."[206]

Time

Having rather clearly stated the theistic doctrine of creation as a probable inference from cosmic teleology, Tennant changes the connotation in his discussion of the problem of time. He does not accept the common supposition that "God and time . . . precede creation." He holds on the contrary that "The world is coeval with God." After having clearly and explicitly denied that the world is derived from God by logical implication, he falls into a flat contradiction in stating, "God as a determinate being, implies a world."

He evidently feels himself slipping into the vortex of pantheism, and seeks to save himself by a distinction.

> Creation can be conceived as idea and deed together, and the divine transcendence as not temporal priority, but as consisting in the difference between God and His utterance which pantheism identifies.[207]

But if the two are mutually implicative, the distinction is unsupported, ontologically. It becomes a distinction in aspects only.[208] Tennant both affirms and denies that the world is implied in the existence of God as much as God is implied in the existence of the world. Although till the last he insists that the world is dependent upon God and that God is not dependent upon the world, yet when Tennant says that "God is conceived as *essentially* the world-ground or creator, not . . . a being . . . who might or might not have created,"[209] he is contradicting his most strenuous protestation.

To say that "Time preceded the world," in the literal sense, is a meaningless jargon of syllables. It is as though time were assumed to be a substantive entity. The reader will remember that in discussing the epistemological categories it was alleged that literal time is *the mere empty possibility of relationships in sequence*. As an empty possibility it neither precedes nor succeeds; it only is a possibility. However, the statement that God chronologically preceded the world, is not a meaningless statement, for both God and the world are conceived as substantive entities. Either God chronologically precedes the world, or the Judeo-Christian doctrine of creation *ex nihilo* must be completely abandoned.

Tennant's discussion of "the Eternal and the Time-process"[210] involves an intricate discussion of a considerable number of figurative definitions of time. To none of these definitions can objections properly be taken. All are well established in the usage of the language. However, the figurative nature, and the literal elements in these terms would be greatly clarified, and apparent contradictions eliminated, if the simple literal definition of time, *the mere empty possibility of relationships in sequence,* were always held in the background for purposes of comparison with other legitimate but figurative or partly figurative usages.

Tennant concludes

> If the world-ground, the Supreme Being who designed and created the world, be also The Eternal, His supratemporality must be so conceived as not to leave souls and the world-process matters of indifference to Him, or to preclude *rapport* between Him, and beings in whom "Time is" and whose deeds are in Time.[211]

In the literal sense when we say that God is eternal, we simply mean that He has existed and will exist throughout all the possibility of relationships in sequence. The word, "supra-temporal" used by Tennant, must be understood in a figurative sense, "temporal" in such a usage referring to the present world order, and "supra-" meaning that God preceded the present world order. It would be a fascinating study to unravel all the definitions and combinations of usages of the word "time" discussed by Tennant in this section. However, a considerable number of pages have already been devoted to the discussions of time in connection with the epistemological categories. (See Appendix B.)

The Infinitude of God

Tennant admits that inductive argument does not absolutely or demonstratively prove that God is infinite. He is partly right in saying that the notion of infinitude, as applied to the Deity and the divine attributes, was imported into Christian theology from Greek philosophy, where it appears in more than one form.[212] He is quite right in pointing out that

> . . . when Aquinas (Summa Theol., I, Q. 7) discusses the infinitude of God, he does not define 'infinity', nor seem to be aware that he is using it, as well as 'perfection', in more senses than one, and with somewhat of arbitrariness . . .[213]

The fact is that Thomas' discussion of "the infinity of God" in the passage cited is based upon Aristotle, largely upon Chapter IV of Book III of Aristotle's *Physics*. In this passage Thomas quotes Aristotle nine or ten times, but has no quotation from or argument based upon the Old or New Testaments. His one quotation from the Apocrypha[214] is a mere reference to "measure and number and weight" and is not cited as teaching the infinitude of God.

Greek and Thomistic references to the infinitude of Deity which Tennant correctly considers vague and confused, contribute more to mathematical pantheism than to theism. Tennant says

> . . . if 'infinitude' be not, as apparently with Aquinas, but a synonym for 'self-subsistence', the only other definite sense that the term has historically borne is likewise out of place in theology of any type. The mathematical idea of infinity

> applies only where there are magnitudes, or parts correlatable with numbers.[215]

Thomas' notion of infinitude is much mixed and confused with the mathematical idea just described in Tennant's words. In an appendix note[216] Tennant discusses what he calls the "proper (*eigentlich*) infinite." In this note he says

> The positive characteristic of the new infinite is thus described by Dedekind: a collection is infinite if it can be put in a one-to-one correspondence with, or is equal (in number of terms) to one of its own parts.

Thus an infinite series of integers is equal to an infinite series of odd numbers, or an infinite series of even numbers although the series of odd numbers and the series of even numbers are parts of the series of integers.

The fallacy of applying this question of infinity to any existent Being is that infinity is regarded as a whole. Let the specialized mathematicians who deal with such processes have their own vocabulary in their own limited field. Competent mathematicians do not use such vocabulary in all of mathematics. In the field of philosophy and in the field of ordinary discourse infinity by definition (the etymology in this case is a correct guide to the meaning) *is not a "whole"*. No philosopher or common man who ever with serious and sober purpose declared that "a whole is greater than any of its parts," ever within the same universe of discourse, would have accepted infinity as a "whole."

A similar confusing device is sometimes used without due limitation of the frame of reference of the term. A long line and a short line are drawn on the blackboard, then the statement is made that since each line has an infinite number of points, for every point on the long line there is a corresponding point on the short line. This is made to mean that the parts of the two lines are equal, therefore the two lines are equal. Sometimes for variety the student is told that since the short line is a part of the long line, therefore a part is equal to a whole. The fallacy, of course, is that points are not parts of lines in any sense proper to philosophy or common discourse.[217]

Tennant speaks in terms of "a new definition of number," infinity being regarded as a number. This is right and proper in a certain limited field of mathematical abstractions, if the specialized mathematicians in such field wish so to define their terms. Again, however, in philosophy and ordinary discourse, infinity is not a "number."

Tennant well says of this "proper *eigentlich* infinite,"

> It can, therefore, have no more relevance to the subject matter of theology than has the older conception [of mathematical infinity].

Tennant concludes that infinitude as applied to Deity is scarcely more than an honorific term.

Calvinistic Use of "Infinite"

Tennant is certainly in error in saying

> We may conclude that 'infinity' has not borne any definite connotation that is essential to theism or appropriate to the theistic characterization of the world-ground.[218]

He is scarcely familiar with prevailing usage of the word "infinite" in the Calvinistic Protestant tradition. The definition of God set forth by the Westminster Assembly (1643-1649) contains a usage of infinitude which involves none of the contradictions or confusions which Tennant has summarized. The definition is

> God is a Spirit, infinite, eternal and unchangeable in His being, wisdom, power, holiness, justice, goodness, and truth.

The first three adjectives, "infinite, eternal and unchangeable," qualify the seven abstract nouns, "being, wisdom, power, holiness, justice, goodness, and truth."

(a) The words "infinite in his being" so far as words are concerned, might have implied that infinitude is totality of all being, in line with pantheism. However, this was not intended, and has never been accepted as the meaning of the phrase in its context; rather, the meaning is expressed in the word "omnipresence." God's being is infinite, in that his total personal presence is everywhere or rather, everything is immediately in his presence. Infinitude of being should not thus be construed as bigness or immensity, but rather as personal presence. Just as for one teaching a class, the entire class is immediately in his presence, and space limitations are negligible, so, according to the theistic postulate, everything in the world is immediately in the presence of God, and space is no limitation of this presence.

(b) Infinitude as applied to "wisdom" is a simple concept, omniscience. This, Tennant correctly says,[219] includes knowledge of the future (implied by creation as above defined) as well as knowledge of the past.

(c) Infinitude in "power" is more complicated. Omnipotence, however, from the empirical inductive point of view may be taken to mean simply that the Creator possesses and controls all the power there is. It does not mean that power is applicable outside the proper definition of the term. To change the logical square of opposition or the multiplication tables, is not within the definitive field of the operation of power as power.

(d) Infinitude as applied to the "holiness," (e) "justice," and (f) "goodness" of God, describes His moral attributes. Infinite holiness, justice and goodness would be synonymous with moral perfection, as defined below by Tennant.

(g) Infinitude in "truth" brings forward the important suggestion that the nature of God is true, or truth is of the essence of his nature, and that his infinitude does not imply anything contrary thereto, but is fully in accordance therewith.

The above remarks on the Westminster (Calvinistic) definition of God are descriptive. Whether Tennant would recognize this type of infinitude as implicit in the conclusions of empirical theism is extremely doubtful. If his empiricism included historical data of religious history, his notion of the definition of such terms as infinitude would doubtless be modified. It is my thesis that the Calvinistic concept of infinitude as expressed in this Westminster definition, would be a reasonable extrapolation from the positive elements in Tennant's empiricism.

Perfection and Immutability

The notion of perfection is said to have developed out of the notion of infinitude. Tennant first reviews certain mystical notions of perfection which, he well says, are "scarcely more determinate than nominally deified nothingness." Determinateness, he argues, "certainly involves negation of what is left out, but also affirmation of what is put in." Perfection in all directions without qualification is, therefore, hopelessly contradictory.

> In other words, 'perfect' is a non-significant term unless it means perfect in some particular respects, and connotes perfection of this or that kind. Idealized to the limit in all ways and respects at once, perfection becomes a bundle of contradictions or incompatibilities.[220]

Closely related to the idea of perfection, and growing out of it, is the idea of immutability. This concept, like that of perfection, becomes hopelessly contradictory unless it is specifically qualified. Ethical perfection is a determinate conception excluding, e.g., the notion of "a perfect fiend." Ethical immutability is also a distinctly determinate concept excluding the notion of ethical indifference or inactivity.

Perfection, Existence, and Goodness in Thomas

Tennant very consistently rejects St. Thomas' doctrine of perfection, which identifies existence with goodness. Tennant refers to the *Summa Theologica,* Book I, Question V in which Thomas quotes Augustine as saying, "In as much as we exist we are good."

The reference is found in Augustine's treatise *On Christian Doctrine,* Book I, Chapter 32. The fuller statement of Augustine is

> For it is because He is good we exist; and so far as we truly exist we are good. And further, because He is also just, we cannot with impunity be evil; and so far as we are evil, so far is our existence less complete. Now He is the first and supreme existence, Who is altogether unchangeable, and Who could say in the fullest sense of the words, "I am that I am," and "Thou shalt say to them, I am hath sent me unto you"; so that all other things that exist both owe their existence entirely to Him, and are good only so far as He has given it to them to be so.

This passage is an illustration of Augustine's philosophical doctrine that sin is a privation. Charles Hodge in his *Systematic Theology,* [221] with full and careful analysis, shows that this doctrine was an incidental inadvertence, not germane to Augustine's system of teaching.

Tennant evidently errs in classing the doctrine that all existence is good as one which Augustine derived from Plato. Hodge points out that Augustine developed this notion in his Manichaean controversies as a reaction against the teachings of Manes that sin is a substance.

If the doctrine that all existence is good and thus that the perfect existent, or the perfect being, is perfectly good, is incidental and not essential to the system of thought propounded by Augustine, we may question whether it is essential, or incidental, in the teachings of Thomas Aquinas. It is emphatically stated and reiterated in the discussion of Questions IV to VIII in Book I of the *Summa Theologica.* The same doctrine is carried out in Questions XLVIII and XLIX of the same book, which discuss the nature of evil and the cause of evil. However, it must be admitted that what Thomas says on this point is confused and contradictory. Both Thomas and Augustine teach that moral evil is positive guilt as well as privation.

Thomas on Immutability

On the subject of immutability[222] Thomas confusedly but emphatically teaches that God is "pure act, without the admixture of any potentiality." This is akin to his doctrine in the following question, (Q.X) which discusses "the eternity of God." He holds that in God's eternity there is no movement, no succession, but complete simultaneity. However, such static immutability and timelessness are completely abandoned wherever Thomas discusses divine acts of creation, providence, and redemption. Thomas, like Augustine, regards such acts as literal and chronological.

It need hardly be pointed out that these conceptions of immutability and simultaneity are entirely outside of, and contrary to, the Biblical conception of God and entirely contrary to the idea of God which Tennant inductively develops. Tennant says[223]

> The divine immutability, in fact, can only be self-identity and self-consistency through change; and the divine perfection, if it include more than morality, cannot be static completedness, but is rather self-manifestation of the Eternal in the temporal process of ethically significant history. That they have been conceived predominantly in the terms of the Parmenidean doctrine of Reality must be said to be an unfortunate accident.

Transitional Summary

Tennant breaks his discussion of the idea of God, which he believes he has developed from empirical scientific data, with a brief summary.[224] He feels that a synoptical survey of accepted knowledge concerning the world and man indicates that "the world-ground is an intelligent and purposive spirit," but he says

> . . . reasons have been given for asserting that the world-ground, reasonable belief in which is evoked by empirically conducted inquiry, cannot be described in terms of static concepts such as completedness, perfection, infinitude, immutability or timelessness, in the unqualified forms in which they have been cherished by abstractive speculation . . .

Tennant has shown that "completedness" in the sense of Thomas Aquinas' fully realized God, in whom there is no potential, is a contradictory idea. It has also been shown that such completedness is not consistent with Judeo-Christian theistic tradition. "Perfection," and "infinitude," are not intelligible concepts except as these terms are applied to specific attributes, such as "being, wisdom, power, holiness, justice, goodness, and truth." Tennant has made it plain that "immutability," or "timelessness," in a static sense also involves hopeless contradictions. Immutability if describing self-consistency, is an acceptable notion which seems to grow out of the data. Timelessness, if it means complete disconnection from the abstract possibility of sequence, is utterly meaningless, but if it means eternity, in the sense of *Ewigkeit,* it is a necessary postulate if it is agreed that the data indicate a Creator.

The Absolute

Tennant spends approximately fifteen pages in a very compact and valuable discussion of the idea of The Absolute as a designation for the character of God. It would be profitable to pursue a historical investigation of the development of the conception of The Absolute with a critique of Tennant's arguments on each successive system. "A critical investigation of the idea of The Absolute in the history of philosophy and theology," would be a good subject for an entire thesis.

The word "absolute," from *absolvo,* and *absolutus,* meaning the disconnected, the unrelated, or the unlimited, or the *unbestimmt,* or indeterminate, is, as a noun, a perfectly meaningless combination of letters or sounds. That which has no limits or relationships, is, by its very nature, entirely outside of the field of human discourse. Therefore, even to write or pronounce the words The Absolute, is to write or pronounce a contradiction.

Tennant, however, does not go so far; he admits The Totality as an intelligible meaning of the term, The Absolute. The reader may not agree, for totality is in its very nature a relative term. Totality is a totality *of particulars.* Moreover, totality as totality is intelligibly related to human discourse. Tennant's position would be stronger if he had not made this admission.

Tennant's rejection of the nominal use of The Absolute is entirely negative, and, therefore, detailed study of this section of his work may be omitted. It does, however, contain several striking aphorisms which should be incorporated at this point.

> . . . it must be alleged that Platonism, neo-Platonism and modern forms of absolute idealism are on a par with prescientific creations of poetic or mythopoeic fancy.[225]
>
> If there be an Actual world, the Deity of Aristotle [the unmoved Mover] should have no awareness of it, not to say no relations with it.[226]
>
> . . . neo-Platonism is a poetic treatment, largely of spurious concepts and non-significant words, abounding in results so fantastic as that souls or knowers emanate from knowing or reason.[227]

> Psychology . . . forbids us to entertain the possibility of regarding what for it is a subject as an adjective of another subject and to speak of illusion or appearance as if it involved no subject.[228]
>
> . . . an abuse of metaphor seems to be substituted for clear thought when it is represented that love does away with mutual exclusiveness; for numerical diversity of subjects, together with qualitative likeness of objects and affections, is what love implies.[229]
>
> . . . God is limited by His very determinateness, not an indeterminate Absolute in whom all differences are lost.[230]

Rejecting the use of The Absolute as an independent noun concept, it does not seem to occur to Tennant that the adjectival or adverbial use of absoluteness is very common in the history of philosophy and theology and is perfectly consistent with the empirical data and the attributes of deity which the data imply. If the deity be characterized by certain abstract nouns such as "being, wisdom, power, holiness, justice, goodness, and truth," and if these nouns be adjectivally qualified by "infinite, eternal and unchangeable," as we have indicated above,[231] it is perfectly consistent and reasonable to attach the adverbial term, "absolutely," to each of these three adjectives. For example, "absolutely infinite being," meaning personal omnipresence as defined above, i.e., such that all things are immediately in his presence, is by no means a contradictory or unintelligible phrase. "Absolutely eternal truth," and "absolutely unchangeable (self-consistent) holiness" are similarly intelligible concepts. The adverbial term "absolutely" prefixed to any one of these three adjectives taken as qualifying any of the specified abstract nouns, constitutes a usage which is found very commonly in theological literature, and which contains none of the absurdities to which the nominal use of The Absolute are subject.

Whether or not the adverbial[232] use of the word "absolute" can be empirically justified,—whether or not a Spirit, absolutely infinite, eternal and unchangeable in his being, wisdom, power, holiness, justice, goodness and truth, is a probable inference from empirical data, is beyond the reach of Tennant's study, but is not inconsistent with his positive results.

Personality

Tennant regards his rejection of The Absolute (that is, in its nominal use) as clearing the way for a discussion of the divine personality. It is but a step, he says, from the positive attributes already inferred from empirical data to the conclusion that God is personal.

Personality is defined as more than mere subjecthood, but, nevertheless, as a definite type of determinate being.

The term "supra-personal" is tolerated[233] if no more is meant than that the divine personality transcends specifically human limitations, but the term is rejected "if it connotes something essentially different from volitional, purposive, ethical agency. If these concepts are eliminated from [the term] supra-personal" means impersonal and must be rejected.

> . . . 'God', as used by theism, is not a name for universal reason, ineffable being, or even for absolute morality or a tendency that makes for righteousness, but rather for a determinate spirit who is an artist and a lover, as well as a geometriser, etc.[234]

Determinate personality as an attribute of God wards off all acosmism.

> The theism which purports to have been here established maintains that the many are as Real, and Real in the same sense as the One on Whom their being depends.[235]

Personal Relationships Within Personality, Trinity

Tennant is confronted with the assertion that personality cannot be conceived without objectivity relative to subjectivity. He strongly rejects

> the idea of a developing God who, like us, progresses to self-consciousness and personality [as] . . . indeed incompatible with theism. For theism primarily consists in the

> assertion that, as ground of this world, God must be an intelligent and ethical being . . .[236]

This intelligence and ethical character must be logically prior to creation. But Tennant does not introduce the doctrine of the trinity at this point for he has already committed himself to the doctrine of *eternal creation of the world,* that is, the notion that God and the world are temporally coeval. Within this created-eternal (the reader may say contradictory) concept of the world, Tennant postulates, "a hierarchy of souls in the cosmos, or degrees of 'dominance' in its monads," so that the personality of God is conceived as eternally possessing its object in the world including a hierarchy of souls or monads.

It is in connection with the notion that goodness and love are essential attributes of God, and that these attributes must be realized in his character by expression toward an object equal to himself, that the question of the trinity is finally faced. Tennant retreats from the notion that goodness and love are perfected attributes of God, and regards these attributes as only developing potentials. He here calls attention to his appendix note in which, with tragic disregard of ancient history and contemporary opinion, he seeks to commit the "orthodox" church to Sabellianism,[237] which, of course, gives no perfect objectivity for perfect goodness and love. Tennant concludes

> . . . but obviously unless Trinitarianism becomes Tritheism, it cannot make use of such speculative support [as that perfect goodness and love must have a perfect object].[238]

Immediately after dismissing the doctrine of the Trinity with the unsupported charge that it must be identical with either Sabellianism or Tritheism, Tennant launches out into a sympathetic description of a new and unheard of type of "polytheism." The notion of many gods working at cross-purposes is, of course, repugnant to the educated mind; but Tennant advances the theory that all the technical terms with which the relationships within the Trinity have been historically described, *homoousia, perichoresis,* identity of states of consciousness, and all, should be applied to a society of deities. The name "God" in the singular, it is suggested, should be applied to this society, God being "personal but not a person." Tennant is careful to say that his setting forth of this type of "polytheism" is "not an advocacy of the view."

> Polytheism, of the kind contemplated just now, has never been a candidate for religious or for philosophical recognition, save in so far as Christian doctors have dallied with it before recoiling from it, and popular Christian theology sometimes implies it.[239]

Let the reader remember that Tennant's view of ontological nature is inclined to be vitalistic, that he believes in living monads as very likely constituting the material world. Combine the two notions, vitalistic monadism, and polytheism as Tennant sympathetically describes it, and the result is a view of nature not so very different from the vitalistic emergentism to be found in the writings of John Dewey and the Naturalists.

Does Tennant Reject Polytheism?

Whereas it must be made plain that Tennant does not commit himself to this form of polytheism, yet it is fair to say that (1) he does not reject it in very convincing terms. At the conclusion of his appendix note on the doctrine of the Trinity in which it is fair to say he takes the Sabellian position, he says

> . . . the recent tendency of orthodox theologians to speak of God as 'a social being', and to appropriate such philosophical advantages as the conception of a plural Deity would offer, involves an unconscious desertion of the catholic faith.[240]

But Tennant is not much concerned with catholicity. (2) Although Tennant calls the view under discussion polytheism, the reader may feel that animism is the proper word with which to designate it.

The Trinity

It may be appropriate to suggest here a few salient points to supplement Tennant's discussion of the Trinity.[241]

(1) If the empirical observation of the data of nature is sufficient to indicate the probability of a Creator-Deity, and if there are empirical reasons for thinking that there may be personal dis-

tinctions within the Deity, an empirical philosophy ought at least to examine the data of history to see whether there is any evidence of the manifestation of such a Deity. It is, of course, the Christian claim that the doctrine of the Trinity is based upon historical, not speculative or *a priori* evidence.

(2) From what we know of psychology, personality is both a unity and a complexity. A triune personality infinite in goodness, wisdom, and power, is at least no self-contradictory term.

(a) In individual, personal consciousness there are different nuclei of conation and reflection. The words "I confer with myself," are not meaningless.

(b) In social psychology we learn that a "corporate personality" is something more than merely the sum of the individuals.

(c) In the realm of consciousness in human experience the sum of three states of consciousness may be practically identical with one state of consciousness. The sum of A's idea of an event, plus B's idea, and C's idea of the same event is not a case of one plus one plus one, but may in some cases be practically equal to the idea of any one of the three. That is merely to say that in personal functions pericoresis and interpenetration of identities are empirical data.

From these facts it appears that the concept of one person, infinite in goodness, wisdom, and power, subsisting also as three persons, infinite in goodness, wisdom, and power, is by no means a contradiction in terms. Tennant's dilemma between Sabellianism and Tritheism is psychologically unsound. He has no logical *a priori* reason for rejecting the Christian doctrine of the Trinity. If he had not ruled out data from the life of the historical Jesus, it is at least conceivable that he might have found some evidence for a triune, divine personality.

Limitations, Question of Omniscience

Tennant introduces his discussion of the limitations of God with general remarks based on the consideration that as a determinate personal being, he is not The Infinite in the sense of The All, nor is he The Absolute in the sense of being unrelated. Unfortunately the uses of the words "infinite" and "absolute" in the adjectival and adverbial senses as discussed above, are not taken into consideration as Tennant designates God as the "non-infinite."

Tennant holds that if it is empirically established that God is the Creator, it follows naturally that he has complete knowledge of what he has done and of the processes which he has set in motion. God's knowledge would naturally differ from human knowledge in that (1) it is not based upon sensory perception, and (2) it is not partial or incomplete as to past data and present causal processes.

Tennant dogmatically denies omniscience, however, on the ground that total knowledge of past and present facts and processes does not give ground for future knowledge of *free* actions. He is on reasonable ground in saying that knowledge of past and present facts and processes does not imply knowledge of future free actions; but it may be held that he is making an entirely unwarrantable leap when he completely denies all possibility of knowledge of future free actions. We may not have empirical data in the natural world (minus history) for complete omniscience as to free actions, but neither have we data to exclude such knowledge.

Tennant is, indeed, conscious of an argument to the contrary, but as to knowledge "pertaining to what is neither divinely created nor divinely predetermined," Tennant says

> While we may shrink from dogmatic denial of a possibility as to which we cannot know, it is open to us to observe that something is then supposed for which no warrant is furnished by experience, analogy, or reasonable extrapolation. Such intuition is unimaginable and inconceivable . . . [242]

But it may be urged that such knowledge is neither "unimaginable" nor "inconceivable." In fact the strong words "unimaginable and inconceivable" seem somewhat hysterical.

Jonathan Edwards in his famous treatise on *The Will* constantly declares that if there were a free action God could not foreknow it because, says he, all knowledge is based upon evidence; and since by definition a free act could not be seen in evidence in facts and processes before it occurred, there could be no knowledge of it. Edwards concludes that, therefore, there can be no free act.

Tennant does not seem to be conscious as Edwards was of the assumption on which he is basing his negative conclusions. In fact, he declares the opposite.

> . . . the Creator's cognition is not derived through . . . discursive understanding, and ejective interpretations . . .[243]

If this is so, then Tennant has cut the ground from beneath his denial. We need not claim that empiricism (i.e., empiricism based on nature minus history) furnishes evidence for foreknowledge of free events in order to maintain that such foreknowledge is still possible. Yet we may not be entirely without tangible data on which to base a fairly reasonable inference. Tennant suggests such data by denying it. He says, "We can only take in a symphony as a whole after we have heard its successive notes . . ."[244] This statement is partly true and partly false. It was pointed out in Chapter I that Tennant is quite ignorant of the data of *Gestalt* psychology. It seems to be a well-established fact that we see and hear things in terms of wholes which involve stresses, strains, tendencies, and elements of futurity. That we hear the successive notes *before* we hear phrases and movements as wholes simply is not so; or if one does so, one *never* hears a symphony as such. It is more than a social convention that if the first to the seventh are played in a scale the class subjectively hears the octave. There are elements of dynamic futurity in empirical knowledge.

Tennant's argument that God's foreknowledge cannot possibly include free actions, really goes back to a sensationalistic psychology, which has been shown to be wrong ever since Kant undertook to answer Hume. There are elements in knowledge, elements in the *rapport* between knower and known, which are not merely in the data observed. The facts do not support Tennant's negative conclusions as to the impossibility of omniscience.

The Fact of Evil

Pursuing the general theme of God's limitations, Tennant presents a thought-provoking chapter[245] on the "Problem of Evil." In the first six pages he develops the thought that evil, or the dysteleological, is a fact. Since this may well be conceded, it is not necessary to present, analyze, or supplement Tennant's discussion of various philosophical theories which would deny evil to be a fact.

In spite of this fact Tennant argues

> Since theism teaches that the world-ground is an ethical Spirit, or that God is love, it must also teach that, in some sense, the world is the 'best possible' of its kind. And it may now be submitted that this implication is defensible, so long as we are consistent and in earnest in the use of both the words 'best' and 'possible'.[246]

Best Possible World; "Best"

Inquiring what is meant by the term "best" in this connection, Tennant points out that, "Moral goodness cannot be created as such; . . . free agents live and learn, make choices and build character." Similarly it is argued that the best world will not necessarily be the pleasantest.

> The hedonistic theory that pleasure is what gives worth to life, the ultimate good to be striven for, is generally acknowledged to be untenable: at any rate, it is out of court for the theist . . . thus we cannot have it both ways: the best world cannot be the most pleasurable; and it cannot lack its crown in moral agents.[247]

The same thought is strikingly developed by the late Professor A. E. Taylor in his recent book *Does God Exist?*

> But when you urge . . . that the purpose—if there is one—in that part of nature which does fall under our observation cannot be a morally worthy one it may be you who are thinking unethically when you assume that the only purpose a good God could have in His dealings with men is to promote a maximum of comfort or to enable virtue to 'get rich quick.'[248]

"Possible"

Tennant rejects as a method of endeavoring to harmonize the concept of omnipotent deity with the fact of moral evil, the assertion

> that the laws of thought, i.e., the laws of identity, contradiction, etc., are valid independently of God as well as of the world, and impose themselves upon Him as well as upon ourselves with necessity.[249]

Tennant argues to the contrary

> It has several times been insisted in this work that the valid, abstracted from that of which it is valid, is a mental figment, not an 'existent' *prius*. And it may be argued that this is so even in the case of fundamental laws of thought, as well as in that of the empirical laws of nature.[250]

Tennant's method of harmonizing the concept of the omnipotence of God with the fact of moral evil is to show that

> The sum of eternal truths . . . [is] the mode of God's being and activity, and is neither their *prius nor their product*. And this is the better answer to the supposition that the possible is an arbitrary creation of God, and that the possible and the impossible are alike to omnipotence.[251]

God is not The Totality nor is he The Absolute "in whom all differences are lost." He is a determinate being with certain definitely specified attributes. This determinateness is not "any derogation from such almightiness as theology can predicate of the Deity without stultification."[252]

When we declare that God's nature is true, that truth is of the essence of his being, we are, by asserting that particular determinateness, affirming that "it is impossible for God to lie" (Hebrews 6:18). But this very determinate impossibility is not in any sense contrary to a reasonable concept of omnipotence, for truth and falsehood are not conceivably within the range of operation of omnipotence.[253] The Biblical words for omnipotence, *El Shaddai,* and *ho pantokrator*[254] as well as the Latin-English, "omnipotent," and the Anglo-Saxon "almighty," all imply unlimited power or,—as might be derived from the idea of a Creator,—the origination or control of all the power there is. But not one of these words carries with it the slightest suggestion that logic is subject to, or is within the range of, power. One needs only to ask himself how big an atom bomb it would take to destroy the truth of the multiplication tables, to show the proper determinateness of the word, omnipotence.

Proceeding according to the notion that truth is of the nature of God, and that omnipotence does not mean that God can violate the truth, Tennant argues that in the best possible world there must be the possibility[255] and risk of moral evil for

> Without freedom to choose the evil, or the lower good, a man might be a well behaved puppet or a sentient automaton, but not a moral agent . . . it is idle, then, wistfully to contemplate the happiness which the world might have known had its creator made us capable only of what is right; to profess like Huxley, our readiness to close with an offer to remove our capacity to do wrong and to cause misery; or to indulge the wish that we had been made good at the expense of freedom. There is no moral goodness in a clock, however perfectly it may keep time. Freedom to do good alone, except after suppression of lower motives by moral conflict, is not freedom . . . For the possibility of moral evil entering into this moral order, God, who foreknew it, is responsible: He permits, so to speak, the evil in order that there may be the good.[256]

This is doubtless what St. Paul meant when he said that God "endured with much longsuffering," the violence and wrath of Pharaoh in the latter's seeking to oppose the salvation of Israel (Romans 9:22).

Application

Up to this point Tennant has outlined a conjectural philosophical answer to the problem of evil. In the application of his theory there is much to be criticized. He is not careful in the handling of the rich heritage of our philosophical and theological past. To translate *'ets haddaath tov wa rah* "the tree of knowledge" without qualifications, and to quote "all things work together for good" as though it were a naturalistic cosmic process and not a concept of personal Providence, are instances of inadvertence.

Tennant suggests that the problem of natural evil, particularly such suffering as is observed in the animal world, is to be explained by the necessity of regularity in natural law. But he does not show moral necessity for such regularity.

The question may be asked why we must identify physical pain as evil in itself. The evil of pain seems to me always to be incidental to some other qualities such as malice. Pain apart from moral evil of vicious intent may often be instrumental to good.[257]

Some philosophers find it utterly impossible to identify physical pain in the animal world as evil, unless, as in the case of cruelty, it is coupled with malicious *personal* action.

Borden P. Bowne says

> In the animal world the problem is simply one of pain. Here the pains of personality would seem to be entirely lacking. These spring from the power of looking before and after, from the backward look of memory and the forecasting of the future, from our affections and conscience and the implications of our moral nature. If these were away, our physical pains would be small, after deducting those which we bring on ourselves. Where these are away, as in the case of the lower animals, the problem is not so dark as zoological anthropomorphism would have us believe. The extent and nature of animal pain are unknown. A multitude of facts indicate that even the more highly organized animals are far less sensitive to pain than men are, while of the sensibility of the simple organic forms we have no knowledge whatever.[258]

We do not consider it a sin to put an angle worm on a hook, or to butcher a cow, or to wring a chicken's neck. What is commonly called natural evil is not evil in a true and correct sense of the word. Most of the talk of natural evil seems to be what Bowne calls "zoölogical anthropomorphism." The problem of evil strictly is the problem of moral evil in the life of personal beings.

Tennant's solution to the problems of both moral and natural evil is far better than the solution advanced by those who seek to solve these problems by denying the omnipotence of God. A study of the history of the doctrine of a God of limited power in modern philosophy, from John Stuart Mill through James and Montague, the writings of H. G. Wells, and the philosophy of Brightman and Bertocci would be profitable, but any extended study of the subject is impossible here. Professor Brightman once said to the writer in substance, "One great reason why I do not believe that God is omnipotent, is that evolution took so long." (!) To this I replied that *if* God had omnipotent power, the question of the length of time he might choose to take is perfectly irrelevant. It would reasonably be a matter of complete indifference to a truly omnipotent deity whether he should occupy vast reaches of time in preparing the coal and oil deposits in the material world, or do it instantaneously. That relative amounts of time are matters of complete indifference to omnipotence[259] is evidently the thought of the words, "One day is with the Lord as a thousand years, and a thousand years as one day. The Lord is not slack concerning his promise, as some count slackness, but is longsuffering. . ." (II Peter 3:8, 9)

If God were limited in his resources, yet greater than evil, then, indeed, he might be criticized for having been so slow in the cosmic process, in which he has already had infinite time. It should be pointed out that if evil is an evidence of lack of power on God's part, then we must rationally conclude that evil is greater than God. Even a non-omnipotent God such as Brightman defends, has had infinite time to eliminate evil. (And according to Brightman's theory it is assumed that he ought not to permit evil.) If then in all eternity past[260] he has not been able to eliminate it, it follows that evil is greater than he, and the future will be worse than the past!

Tennant's view, the view defended by the Epistle to the Romans, that God has permitted, and "endured with much longsuffering," evil, in order to bring out personal good, seems a consistent answer to the problem. Tennant has no word to say about the solidarity of the human race in the condition of moral evil in which it is found, and scarcely seems conscious of the redemptive program outlined in the Judeo-Christian tradition. As has been said, Tennant's empiricism excludes a critical investigation of such data as might include historical evidence for such a program.

Tennant does advance the inductive probability of personal immortality.[261] He holds that

> The facts, of which theism is the interpretation, may of themselves indicate no more than that the world is a moral order to the extent of producing moral persons and the conditions of rational and moral life. But just because moral personality is what it is, this interpretation seems to involve more than do the facts themselves. If the *raison d'etre* of the world were merely to produce moralized persons and not to provide for their perduringness, the world purpose could be described as moral, but not in the sense of seeking the highest conceivable good . . . A moral order . . . must not only produce moral beings: it must also respect moral persons and satisfy moral demands.[262]

Immanence

Tennant's chapter on "Divine Immanence and Revelation" is the last constructive step in his metaphysics, his concluding chapter, "God, The Self, and the World," being a summary of the previous steps. The final question for Tennant is whether empirical evidence gives ground for belief in any kind of divine immanence. A corollary question is whether divine immanence is, or is not, a self-contradictory concept.

Tennant first lays down a definition of that which is "technically called deism," declaring that it is a theory which "dispenses not only with occasional intervention of the Deity in the cosmic course, but also with the notion of divine immanence in any form." In the very next sentence he states that this view ". . . has seldom, if ever, been explicitly held by natural theologians: it was even repudiated as equivalent to atheism by the more representative of the writers known as the deists of the seventeenth and eighteenth centuries."[263] This contradiction is probably due to the fact that Tennant wishes to believe himself a theist, but actually holds to a deistic philosophy. One finds even the strange expression "all theists, including deists, agree . . ."[264]

Tennant explains that deism, as he has defined it, is the one extreme relative to which "pantheism or absolute monism" is the opposite. Between these two extremes theism, defined as belief in a God who is in some sense immanent, is said to hold a middle place.

Tennant holds that immanency[265] is implied in creation; the world being "planted out,"[266] and God interacting therewith. Immanency is thus "implicitly involved"[267] in the idea of creation itself.

Mode of the Divine Immanence

Tennant outlines three possible modes by which divine immanence may be conceived. First, immanence may imply that the non-living world is constantly maintained by God in the sense of occasionalism, so that God is everywhere, and mechanism is nowhere. Secondly, divine immanence may imply no constant divine action, such as would eliminate mechanical arrangements, but it may imply divine action from time to time in the nature of miracles. Thirdly, Tennant suggests that divine immanency may be conceived in terms of spiritualistic pluralism, the so-called material of the world being composed of living monads rather than non-living matter.

The first two of these three suggestions, Tennant arbitrarily designates as dualism, a term of reproach in his vocabulary. The distinction by which he excludes spiritualistic pluralism from dualism may be questioned. He insists that the living monads of which the so-called material world may be made are definitely other than God, that they interact with one another and with God.[268] Although Tennant disagrees with Leibnitz and holds that the monads "have windows" and that they interact, yet in his chapter on cosmic teleology he strongly takes the position that spiritualistic monads do not intelligently collaborate. Indeed Tennant, in so many passages, so emphatically describes the created world as "planted out" that he destroys any justification for keeping his theory of spiritualistic pluralism out of the classification of dualism. It is just as truly dualistic as the concept of inorganic matter.[269]

There is, however, another inconsistency in Tennant's expressions which probably explains his self-contradiction in the use of "dualism." He is sometimes as strong against monism as he is against dualism. He says, "insofar as monism is approached, theism is deserted."[270] Nevertheless, in his discussion of spiritualistic pluralism he inconsistently takes several steps in the direction of monism. He says

> The 'planted out,' so to say, will have its roots in the planter and this would as fittingly be called immanence of the world and man in God, as immanence of God in the world and man.[271]

This would amount to pantheistic monism. Although Tennant immediately draws back from this suggestion, saying that it is "not needed by theism" and that it is only "admissible within the sphere of conjecture as to the unknowable," yet Tennant shows that he would welcome such a conception if he could find evidence to support it. If he has an inclination toward monism, he would naturally hesitate to class his own view as dualism.

It is easy to see from the above discussion that the sharp and clear notion of interaction between distinguishable substantive entities has been obscured in the process of Tennant's thinking. He began by pointing out that the concept of immanence develops from the probable inference of interaction between the Creator and the creation. In the process of his thought, however, he has come to the point at which he finds it difficult to conceive of such interaction if the creation be partly composed of non-living matter. This drifts toward the view that interaction is possible only in case of identity of substance, away from the thought that interaction takes place between many kinds of substances. It is far easier for Tennant to conceive of interaction between God and spiritualistic monads, because, although he can find no empirical evidence for it, it is still abstractly possible to conceive of the monads as "rooted in" the Creator.[272]

Question of Immanence in Man

When Tennant turns to the question of God's immanence in human personalities, he sharply draws back from his monistic drifting. He has taken a rather extreme Pelagian position as to human personality. He forgets that he has drawn immanence out of interaction and that interaction between personalities is the most common type of empirical data. He has just been on the verge of identifying immanence with identity of substance, and now, as a Pelagian, amazing as it seems to one who has followed the course of Tennant's argument, he vigourously denies divine immanence in human personalities!

If *rapport* between God and His creation is a kind of immanency as Tennant says (See quotation on p. 238 above from Tennant, op. cit., 209, 213) there is no reason why God cannot be regarded as immanent in man. In his book on Miracle[273] Tennant says

> Direct *rapport* between the Divine and human minds is of course an essential tenet of theism; and if science is not able to assert such *rapport* it is no more able to deny it.

Miracle

Tennant dissolves the significance of miracle in hydrofluoric acid so strong as to dissolve his entire test-tube of empirical reasoning in the process. He says

> Immanence . . . may find expression . . . in the sporadic creative activity which miracle involves when it is conceived as the production of effects such as could not emerge out of the unassisted potencies of the world-elements themselves.
>
> Whether such supernatural *miracula* as distinct from natural *mirabilia* have ever been forthcoming is a question which does not admit of a certain answer, because our knowledge of the intrinsic potencies of Nature is not exhaustive; consequently alleged miracles can never have the evidential value that theology used to ascribe to them, or be co-ercive proofs of the exercise of immediate divine activity.[274]

In other words, in establishing a probable inference that F. R. Tennant has written a book, the fact that "our knowledge of the intrinsic potencies of Nature is not exhaustive" is no difficulty; but in establishing a probable inference that God has spoken,[275] we must have "exhaustive" knowledge of the "potencies of Nature."

Tennant took a firm stand in the beginning of his chapter on "Cosmic Teleology"[276] that "teleology does not profess to base itself on the principle of the 'inconceivability of the opposite'." But now if anyone wishes to establish a probable inference that God has ever done anything in particular, Tennant says, upon *a priori* principles, that such a deed of God could have no evidential value, "because our knowledge of the intrinsic potencies of Nature is not exhaustive."

This is substantially the position which he took in his book on *Miracle* in 1925. Tennant there indeed rejects Hume's argument against miracle. He says

> We may note in passing that Hume, who . . . did not scruple in his essay on miracles to assume the uniformity of Nature as if it were an *a priori* principle, was too shrewd to try to prove its universality. His less cautious disciple, J. S. Mill, was, however, as audacious in zeal to prove as the master had been, upon occasion, to assume.[277]
>
> If induction be not the same as deduction from proved premises, but is a calculus of probability, we cannot exclude the unlikely or the supra-normal as impossible or unworthy of all credence. If the principle of uniformity be not rational, belief in miracle is not irrational.[278]
>
> Science, as well as religious faith, is at bottom the substantiation of things hoped for, the pragmatic evidencing of things not seen.[279]
>
> Experience up to date, one may observe, is equally opposed to the new discovery of science as to the miraculous asserted by religion . . .[280]

But, still, for Tennant, no particular act of God could have any evidential significance, for

> If an exception to a law turns up, whether it be the behaviour of radium or the resuscitation of the dead to life, we must, if we can, widen the law to include the abnormal case.[281]
>
> The wonder, therefore, cannot be used to prove theistic or Christian revelation in the sense of affording rigorous demonstration of doctrine. . . .

> The ultimate causation of an event is in all cases something inscrutable to sensory perception, something over and above the mere occurrence or presentation of the event and something interpretatively read into it rather than inferred from it.[282]
>
> But, unfortunately, in the case of the subject with which we have been especially concerned, reference to indubitable fact or to any datum which opponents can accept in common, is an impossibility. I conclude hence that all discussion of the antecedent probability of miracle is futile.[283]

If Miracle can have no evidential value because causality is inscrutable, and because our knowledge of the possibilities of Nature is not exhaustive, then no empirical data can have evidential value and empiricism itself is completely demolished.

It is not the purpose of this thesis to discuss whether or not particular miracles have ever occurred. Tennant has eliminated that field of investigation *a priori*. It may not be out of order, however, to point out certain facts concerning the actual nature of the claims of the Judeo-Christian tradition.[284] It is claimed that there have been three great series of miracles in three particular junctures of religious history. The first is said to have occurred (1) when "the church" in the sense of the visible group of worshippers of God, had sunk into slavery and forgotten God's Name. Moses was the religious leader with whom the first series of miracles was traditionally connected. (2) The second is alleged to have come when "the church" had begun to hyphenate the name of God with the name of other polytheistic Baals or Lords. Elisha and Elijah were the traditional leaders during that series of miracles. (3) The third, it is claimed, came when the church was dominated by formalism and legalism, with little regard to the ethical and spiritual attitude of the heart. This was the series of miracles said to have taken place at the time of Christ and the apostles.

Aside from these three epochs of miraculous "signs" of divine power, the Judeo-Christian tradition is quite remarkable as an ancient religion, for the fact that it includes very few miraculous events. So-called "sporadic" displays of power are conspicuously absent from this historical religious movement.

Revelation

If any particular act of God could have no evidential value, it is not at all surprising that, for Tennant, revelation is similarly set aside on *a priori* grounds. In the field of natural theology Tennant teaches that

> There is no more need to invoke immanent inspiration, over and above transcendent utterance, in order to account for mankind's progressive discovery of the nature of God than to explain man's acquisition of any other kind of knowledge: the venture of faith involved in natural theology is akin to that involved in inductive science, and does not presuppose a *donum superadditum* of grace.[285]

In both natural theology and so-called revealed religion, Tennant holds that any direct supernatural revelation would be unethical. He says

> . . . ethical theism, taking human personality as the determinative consideration in connection with the present issue, must reject immanent inspiration because it can only be conceived as an impersonal or non-ethical invasion of ethical freedom and personality, incompatible with the theistic conception of either God or moralized man.[286]
>
> . . . an infallible revelation would require an infallible recipient and interpreter as well as an omniscient utterer. And the added supposition of an infallible church, or of an infallible pope, necessitates recourse to the notion of 'impersonal' coercion or over-riding, which is offensive to the theism for which the ethical dignity of free human personality is as fundamental a truth as is the self-revealing nature of God.[287]

However, Tennant, as a mathematician, doubtless has used from time to time a book of logarithms. This should be a fair illustration of an infallible book. But it is hard to see that even Tennant would suppose that an infallible logarithm table requires an infallible recipient or an infallible interpreter. Least of all would it seem that the presentation of a book of logarithms to a mathematical student would in any unethical way infringe upon his free and dignified personality!

Tennant's idea of primitive religious culture is of the not uncommon imaginative type, quite devoid of data[288] from the science of cultural anthropology. He speaks of "the ages when man's imagination was necessarily more fully developed than was his reason," and "the ages when morality was undeveloped" with complete disregard of evidence. Data seems to show that shrewd reasoning came much earlier than a developed imagination, and that elaborated codes of morality are found in the earliest stages of human culture, "ages when morality was undeveloped," being a pure adventure in Shangri-La.

Tennant does attempt to use the data of ancient literature. He says

> The Old Testament is indeed the classic history of the development of religion from trust in local and tribal *numina* to monotheism. . . .[289]

Now "the Old Testament" is a definitive designating term, in our culture, indicating a body of literature at least as well known as "The Koran" or "The Works of Shakespeare." When any reputable writer sets forth a statement to the effect that "The X body of literature is *the* classic history of So and So," the uninformed reader (and a vast number of cultured English-speaking people are almost wholly uninformed as to The Old Testament) has a right to expect that the body of literature designated is indeed a history of the movement described.

Tennant's statement about the Old Testament would be utterly bewildering to a simple honest student who might look into it for the alleged "history." The most he would have a right to say would be something like this: "The Old Testament, when worked over, rearranged, and cut down, in accordance with the *a priori* theories of *Religions-geschichte* contains literary material which many eminent critical scholars believe can be fitted into the process which they believe to have been historical; it being admitted that the rearrangement of the Old Testament material in accordance with such theory, has had to be constantly revised and in many parts, abandoned, as the data of archaeology have been brought to light."[290]

That the process by which the material of the Old Testament is alleged to fit in with the theories of *Religions-geschichte,* is based on *a priori* considerations is made abundantly evident by James Orr in the first chapter of his monumental work, *The Problem of The Old Testament.*[291] The value of this citation is in its direct quotations from the leading scholars in the field, indicating their *a priori* interests in *Religions-geschichte* as a governing motive in their rearrangement of Old Testament materials.

Of current date is the critical work on the Old Testament by Professor Robert H. Pfeiffer of Harvard University.[292] Professor Pfeiffer says

> . . . [the] traditional theory, by accepting the book at its face value, necessarily presupposes the reality of the supernatural and the divine origin of the revelations it contains. . . . Historical research can deal only with authenticated facts *which are within the sphere of natural* possibilities, and must refrain from vouching for the truth of supernatural events. [*Italics* my own].

All "supernatural," or theistic, data are excluded *a priori,* by definition. Only those "within the sphere of the natural possibilities" can be admitted for consideration.

The *a priori* nature of Tennant's reasoning, or, since Tennant is very evidently not at home in this field, the *a priori* nature of the reasoning which Tennant has taken over and accepted without careful thought, is evident from the fact that Tennant himself admits that ethical monotheism was known in Egypt at a time when, according to the Biblical tradition, Moses was there.[293] Nevertheless, in spite of the fact that in the Old Testament as it exists, as a well known body of literature, Amos and the later Hebrew prophets claim to have derived ethical monotheism from Moses, Tennant says that "centuries before Amos and the later Hebrew prophets had completed the advance from henotheism-to monotheism," the Egyptian ethical monotheism had been developed. Amos and Hosea *could not* have derived it from Mosaic tradition *ex hypothesi,* regardless of evidence.

The data of the history of human culture exhibits no instances whatsoever in which any religion ever developed from polytheism or henotheism to monotheism. There is only one monotheistic tradition in the entire range of human cultural history. There are only three monotheistic religions, Judaism, Christianity and Mohammedanism. The last two mentioned confessedly derived their monotheism from the first.

Now to rearrange the materials of the Old Testament and force them into the mold of *Religions-geschichte* is to force upon the material a pattern which it does not itself exhibit; it is to make it conform to a rule, not one authenticated example of which exists in the whole range of empirical data.

To illustrate the point, there are various theories of the composition of the works of Aristotle. One might legitimately hold to a theory that the materials in the *Organon* should be rearranged so as to exhibit the history of a certain movement. However, it would be misleading for one to say, without reference to rearrangement of materials, or to a critical theory of composition, "Aristotle's logic is a history of such and such a movement."

Incarnation

Tennant meets the alleged fact of revelation by incarnation, first of all by holding up the idea of the *Theanthropos* to ridicule as an impossible conception. I have written at some length on this subject[294] and shall not here cover the field in which Tennant makes his remark. I should like to add as a footnote, however, the brief article which I wrote for *The Bible Today* of March, 1943.[295] At least this article shows that Tennant is wrong in holding that the conception of "God in the flesh" is self-contradictory.

Tennant shows some familiarity with the Christological controversies of the first four hundred years of church history. He faintly reflects a distant acquaintance with Apollinarianism (a divine nature in a human body), Nestorianism (two persons in one body), Eutychianism (a fusion of two natures, the result being neither human nor divine), but he reveals that he has not critically examined these historical views, and makes it plain that the Athanasian-Chalcidonian Christology has not come within his range of vision.

In the process of this *a priori* argument to show that the incarnation is inconceivable, Tennant reveals again his lack of familiarity with modern scientific psychology. He says

> From the point of view of modern knowledge, there could not be two natures unless there were two persons, or rather two subjects . . .[296]

In terms of "modern knowledge" a "nature" is a *complex of attributes or characteristics,* or, in other words, a nature is a character. Every well-rounded normal personality has many characters, integrated into a unified and relatively harmonious whole. In abnormal psychology, the different characters, or patterns, are relatively dissociated and inharmonious. Thus in view of normal, and abnormal, psychology, it is incorrect for Tennant to say that "from the point of view of *modern knowledge* there could not be two natures unless there were two persons or . . . subjects."

Tennant knows the fact of "dual personality," and in the immediate context of the statement just quoted, he declares that such phenomena "are irrelevant because they do not . . . bespeak the activity of more than one soul in one body, whereas in the present case [Nestorianism] two subjects are involved." Tennant, therefore, possessed data to show that in terms of modern scientific psychology, the concept of two natures (complexes of characteristics) in one perfectly harmonious and integrated personality, is not an irrational or impossible conception.

With regard to the historical evidence for the *Deus-homo,* Tennant has little to say.[297] Tennant does reflect some of the older controversies over the life of the historical Jesus. He says

> The theologians who uphold these views [views contrary to the incarnation] are, indeed, accused of arriving at them by a subjective method of dealing with the historical records, straining out of all the Gospels alike as unauthentic, every saying in which divine or superhuman claims are made by the founder of Christianity, despite the absence of objective canons of criticisms, requiring them in all cases to do so.[298]

It is as Albert Schweitzer says

> Precisely this is the characteristic of the literature of the Life of Jesus at the opening of the twentieth century,—that the purely historical, even in the productions of historical,

> scientific, professional theology, retires behind the interest in the world-view.[299]

Tennant, however, has nothing to do with the difficult and precise field of historical data. He proceeds to say

> But, assuming that those liberal theologians who have approached the problem from the side of literary and historical criticism are thus guilty of arbitrariness, or are guided by a foregone conclusion instead of investigating the documents disinterestedly, some would ask whether their foregone conclusion is not grounded upon considerations more relevant than the conclusions of disinterested study of ancient records. Liberal theologians . . . may refuse to allow that it lies within the power of history to utter the last word upon this issue . . . The historical method is the scientific method. The tendency to decry historical facts as too parochial and insignificant to be accepted as sources of universal truth, bespeaks an emotional attitude rather than a philosophically reasoned conviction . . . But when all this is said, it remains true that the metaphysical interpretation of a personality of long ago, and an explanation (in terms of it) of the experiences of contemporary observers, are not problems of historical science, . . . It is not history, then, that theologians of the liberal school need to challenge; . . . But they believe themselves to have reason to question, on grounds other than historical, an interpretation of historical events, etc., which history is unable to pronounce either true or false. They reject this interpretation on account of the incomprehensibility of its implications and the difficulty of assimilating them with the implications of ethical theism, which they regard as a philosophically reasoned world view.[300]

Thus it appears that in spite of historical data, Tennant rejects the notion that God has ever done anything in particular, or that God has ever said anything in particular. On *a priori* grounds all particular manifestations of deity are rejected.

Conclusion

At the conclusion of this present chapter which has to do with

Tennant's metaphysics, it is suggested that Tennant's empirical theism if it be taken as a whole, must be judged to have fallen short of its goal. Tennant can fairly be said to outline certain empirical evidence for theism in the physical, biological and social sciences, but his philosophy is not only positive and empirical, it has also an *a priori* negative element. It is not left an open question whether God has ever spoken or has ever taken any action, as a person may be expected to speak and act if he exists. The reader is asked to believe that there is a personal God who never has spoken or acted in particular, and for whom so to speak and so to act would be inconceivable and contradictory.

It would seem that a theory of a personal God, faced with *a priori* negative assumptions ruling out the possibility of specific act or word, is difficult to accept. The inductive probabilities certainly did look inviting, especially in Tennant's great section on the teleology of the inorganic world; but the reader is likely to have a mental reaction similar to that of the two who walked to Emmaus,—"We thought it had been He who should have redeemed Israel!" "But," says Tennant, "he did not and he could not!" A Personal God such as Tennant thinks inductively probable, who would never reveal himself, is most highly improbable.

An empiricist, thoroughly believing in the inductive method, and accepting Tennant's constructive arguments for cosmic teleology, but not ruling out the possibility that God has come in the flesh, welcomes heartily the fragments of theism which are found in Tennant's structure of thought. We need not, however, be turned back from the projection of the factual curve of probability on any *a priori* grounds. Well-rounded empirical "philosophical theology" must[301] engage in a thorough investigation of historical data, including the entire field of archaeology and literary criticism, especially as related to the one existing monotheistic tradition.

1—Tennant says, *Philosophy of the Sciences*, p. 143, "by 'metaphysics' I mean ontology, together with the department of epistemology that is concerned with knowledge of the ontal realm." This, as I understand it, is the general British use of the term, metaphysics. I am employing the word, however, in a manner more consistent with American philosophical usage, identifying metaphysics with ontology and treating epistemology as a distinct but closely related field.

2—Ibid., p. 130.

3—Ibid., p. 137.

4—Ibid., p. 134.

5—Ibid., pp. 134f.

6—Ibid., pp. 139f.

7—Ibid., p. 142.

8—By scientific realism, Tennant means the notion that physics is ontology.

9—Ibid., pp. 142f.

10—Ibid., p. 143.

11—Ibid., p. 186.

12—Ibid., p. 145.

13—Ibid., p. 146.

14—Ibid., p. 146.

15—Ibid., p. 148.

16—The irrational is the contradictory, whereas the non-rational is merely the factual.

17—Ibid., pp. 149f.

18—Ibid., p. 149.

19—Ibid., p. 147.

20—Ibid., p. 153.

21—Ibid., p. 153. See W. S. Jevons' *Logic,* Macmillan, 1914, Chapter XII, ". . . Division and Definition," and Chapter XXXII, "Classification . . ."

22—Ibid., p. 155.

23—Ibid., p. 158.

24—An opinion which he takes, from M. Emile Meyerson, in his book, *Du Cheminement de la Pensée.*

25—Ibid., p. 159.

26—Ibid., p. 160.

27—Ibid., p. 161f.

28—Ibid., p. 161f.

29—Excellent except insofar as Tennant is seriously mistaken in identifying eighteenth century deism with theism. *English Deism, Its Roots and Its Fruits,* by John Orr, Ph. D., Eerdmans, 1934, being an expansion of Professor Orr's Ph. D. dissertation at the University of Pittsburgh, is probably the most complete and reliable historical work on deism available in English. The traditional distinction between the terms deism and theism, namely, that theism, "unlike historical deism, . . . does not deny revelation" (quoted from Webster's Unabridged Dictionary), a distinction constantly maintained by Robert Flint, Charles Hodge, Benjamín B. Warfield and the great majority of writers in the field of systematic theology, is one which Tennant has no right to disregard. The fact is that Tennant leaves little if any room for revelation. He prefers to be classed as a theist, but it is questionable whether he should not actually be classed as a deist. See pp. 247 ff for a fuller discussion of Tennant's use of the terms "deism" and "theism" in his *magnum opus.*

30—Ibid., pp. 162-188.

31—Ibid., p. 168.

32—Ibid., p. 184.

33—Ibid., p. 184.

34—Ibid., pp. 184ff.

35—Ibid., p. 187.

36—Ibid., p. 187.

37—This is an objective comparison, and does not imply the assumption of *a priori* criteria.

38—This is not to deny that in revealed religion God, not man, is presented as taking the initiative.

39—F. R. Tennant, *Philosophical Theology,* Volumes I and II, Cambridge University Press, 1928, 1930, Reprinted 1935, 1937, Vol. II, p. 2.

40—Both of these views are regarded by Tennant as human formulation or description of law, not as ontological law.

41—Ibid., p. 5.

42—Quoted from *Mind,* N. S. No. 114.

43—Quoted from A. S. Eddington, *The Nature of the Physical World,* Macmillan, 1929, p. 241.

44—Op. cit., Vol. II, p. 8.

45—Ibid., p. 9.

46—Ibid., p. 10.

47—Ibid., p. 10.

48—Ibid., p. 9.

49—F. R. Tennant, *Philosophical Theology,* Volume I, p. 202.

50—*Scientific Monthly,* Volume LXVII, No. 1, pp. 15f.

51—Daniel Lamont, Professor of Practical Theology, New College, Edinburgh, *Christ and the World of Thought,* T. & T. Clark, 1935, p. 67. Cf him, Edwin Lewis, *The Philosophy of the Christian Revelation,* Harper, 1940, p. 340, note 20, says, "The first eight chapters of Lamont's *Christ and the World of Thought,* are an effective exposition of Heim's Philosophy." Lewis is referring to the dimensionalism of Karl Heim as set forth in his *Glaube und Denken,* 1931, English translation entitled *God Transcendent,* Scribner, 1936. Tennant does not show any acquaintance with Heim's dimensionalism or with Lamont's interpretation of it. The substance of the dimensionalist movement seems to be a retreat into irrationalism for the purpose of defending a badly damaged Christian faith.

52—I am indebted to Professor Cameron, formerly of the Massachusetts Institute of Technology, for this statement.

53—F. R. Tennant, *Philosophical Theology,* Volume II, p. 10.

54—Ibid., p. 12.

55—Ibid., p. 12.

56—Ibid., p. 12.

57—Ibid., p. 13.

58—Ibid., p. 15.

59—Ibid., p. 262. From an appendix note entitled "Hypothesis, Theory, Fictions, etc."

60—Ibid., p. 16.

61—Ibid., p. 18.

62—Ibid., p. 21.

63—Ibid., p. 21.

64—Ibid., p. 22.

65—Ibid., p. 22.

66—Ibid., p. 23.

67—*Philosophical Theology*, Volume II, pp. 24-50.

68—Ibid., p. 42.

69—Ibid., p. 46.

70—Ibid., p. 47f. A. E. Taylor, (*Does God Exist?* Macmillan, 1947, p. 6) thinks that the rationalism which insisted upon both *a priori* natural law and *a priori* moral law, was more conducive to theism. He suggests that the abandonment of the notion of *a priori* moral law by materialistic Naturalists, has led to the confusion of emergentism. However, we need not hold to *a priori* rationalism of any kind, to believe that by empirical scientific processes, evidence is developed for theism involving the creation of a reasonable natural order, and the establishment of a redemptive moral order. For creationistic theism, there need not be an exact one to one correlation between material physics and Euclidean mathematics.

71—Ibid., p. 49.

72—Ibid., p. 48f.

73—*The Nature of the Physical World*, pp. 220, 306.

74—*Scientific Monthly.* Vol. LXIII, No. 3, pp. 213ff.

75—Tennant does not refer to a universal spiritual entity, monistically conceived, but to pluralistic non-material entities. Ghosts they might as well be called.

76—See discussion of epistemological dualism in Chapter II.

77—Force from behind, or from the tail.

78—*Philosophical Theology*, Volume II, p. 24.

79—Ibid., p. 29.

80—Ibid., p. 51.

81—Ibid., p. 51.

82—Ibid., p. 52.

83—Ibid., p. 53.

84—P. W. Bridgman, *The Logic of Modern Physics*, Macmillan, 1927, reprint, 1946, p. 37.

85—Op. cit., p. 55.

86—Ibid., p. 60.

87—Ibid., p. 60.

88—Ibid., p. 62.

89—Ibid., p. 65.

90—Ibid., p. 64.
91—Ibid., p. 66.
92—*Philosophical Theology,* Vol. I, p. 233, footnote.
93—Op. cit., p. 68.
94—Ibid., p. 68f.
95—Ibid., p. 70.
96—Ibid., p. 70.

97—In my *What is God?* (op. cit., 1937, p. 116) published before the works of Tennant had come to my attention, I said, "We simply cannot accept the phrase unconscious intelligence as an intelligible conception. It is as absurd as 'a square circle.' The words 'unconsciousness' and 'intelligence,' if they have any meaning at all, are flatly contradictory."

98—Op. cit., p. 70.

99—In my book last referred to I said, "... we cannot conceive of intelligence apart from consciousness ... when we find intelligence displayed in an object or in a set of objects which cannot be thought to be conscious themselves, we say that they are not then manifestations of their own present intelligence but manifestations rather of another intelligence or (in the case of habits previously established) of their own intelligence exercised [consciously] at a previous time." (p. 117.)

100—Job 39:26, 27. R.V.
101—Op. cit., p. 71.
102—Ibid., p. 72.
103—Ibid., p. 72.

104—Throughout this volume Tennant spells "noümenon" with a diaeresis. This was not the case in Volume I (See e. g. p. 247). It is true, that the word, *noeo,* is a contract *eo* verb, and that noümenon, from the present passive participle, represents a further contraction in the diphthong as the word passes from Greek to English. I shall of course, within direct quotations, follow the usage of the source whatever it may be, but outside of quotations I shall not use the diaeresis, since this unnecessary refinement is not customary in American literature.

105—Ibid., p. viii.
106—Ibid., p. 255.

107—Edgar Sheffield Brightman, *A Philosophy of Religion,* Prentice-Hall, 1945, p. 28.

108—Ibid., p. 277.
109—Op. cit., p. 78.
110—Ibid., p. 78.
111—S. T. I. Q. II, A. 1
112—See especially his *Summa Theologica.* Part I, Question II.
113—Op. cit., p. 78.

114—See Matt. 11:28-30. See my fuller treatment of the Thomistic arguments in my article on "Presuppositionalism" in *The Bible Today* for May 1948, Vol. 41, No. 8.

115—Ibid., p. 79.

116—Gottfried Wilhelm Leibnitz, *New Essays Concerning Human*

Understanding, translated by Alfred Gideon Langley, Open Court Publishing Company, 2nd edition, 1916, p. 504f; Charles Hodge, *Systematic Theology*, Three volumes Scribner, 1871, (Recently republished by Eerdmans) Vol. I, p. 205; and, Windelband, W., *A History of Philosophy*, translated by James H. Tufts, Macmillan, 1893, reprint, 1938, p. 393.

117—Anselm's *Proslogion* is conveniently translated by J. S. Maginnis in the *Bibliotheca Sacra*, Volume VIII, 1851, pp. 529-554. The reply by Gaunilon, a monk of Marmoutier, and Anselm's rejoinder, are found in the same volume, pages 699-715.

118—Ibid., p. 705.

119—Ibid., p. 713.

120—René Descartes, *The Meditations and Selections from the Principles of Philosophy*, translated by John Veitch, LL. D., Open Court Publishing Company, reprint 1946, p. 78.

121—Ibid., pp. 78, 80, 81, etc.

122—Ibid., p. 220.

123—Ibid., p. 220.

124—Ibid., p. 219.

125—The same inductive argument is found in the *Discourse on Method*, (René Descartes, *Discourse on Method*, John Veitch, translator, Open Court Publishing Company, reprint 1945, Ch. IV, pp. 36ff.)

126—Op. cit., p. 504f.

127—Italics mine.

128—Op. cit., p. 532.

129—Op. cit., p. 18.

130—Ibid., p. 500ff. which is within Book IV, Chapter X, paragraph 7.

131—Loc. cit., p. 505.

132—Loc. cit., p. 505.

133—See *Pauline Theism and Kant on the Theistic Arguments*, read before the Society of Biblical Literature and Exegesis, on December 31, 1946, printed in *The Bible Today*, March, 1947, Volume 40, Number 6.

134—Immanuel Kant, *Kritik Der Reinen Vernunft*, Herausgegeben von Bennon Erdmann. Dritte, Mehrfach Verbesserte Stereotypausgabe, Hamburg und Leipzig, Verlag Von Leopold Vos, 1884; *Critique of Pure Reason*, translated by J. M. D. Meiklejohn, London, Henry G. Bohn, 1860. Transcendental Dialectic, Book II, Chapter III, Section 4, p. 370.

135—Op. cit. pp. 97, 99, 144, 146.

136—Ibid., p. 264.

137—Here it may be said that Tennant shows some knowledge of the fact that there has been such an argument as Descartes' *a posteriori* proposition, though Tennant makes no reference to Descartes in this connection.

138—Op. cit. p. 80.

139—Dr. Max Planck, Professor of Theoretical Physics in the University of Berlin, *Treatise on Thermodynamics*, translated by Alexander Ogg, Third edition from the Seventh German edition, Dover Publications, 1945, p. 88f.

140—Ibid., p. 85f.

141—Ibid., p. 90.

142—Ibid., p. 82.

143—Ibid., p. 83.

144—Ibid., pp. 81f.

145—Ibid., p. 81.

146—Ibid., p. 96.

147—*Discourse on Method,* Part V, op. cit., pp. 59, 63. *Meditation* VI, op. cit., pp. 94, 100, 102, 104.

148—Ibid., p. 219.

149—Axiom V quoted in full above. See p. 184 f.

150—Op. cit., p. 414. It is very possible that Windelband may be the source of Tennant's error.

151—*Meditation* VI, op. cit., pp. 93, 104. *Discourse on Method,* Part IV, op. cit., p. 43, and frequently elsewhere.

152—*Meditation* IV, op. cit., p. 69.

153—Op. cit., p. 100.

154—Quoted in the article entitled "Descartes", Hastings' *Encyclopedia of Religion and Ethics,* Vol. IV, p. 647.

155—It is true that the problem of interaction between mind and body was acutely felt by the followers of Descartes, and led into "occasionalism" or "parallelism", and later into the "pre-established harmony" doctrine of Leibnitz. Dewey in 1886 held a similar view of Descartes' body-mind philosophy. In an article, now sounding very curious, entitled "Soul and Body" in the *Bibliotheca Sacra* (Vol. XLIII, pp. 239 ff.) he said, ". . . the soul is, through the nerves, present to all the body. This means that the psychical is immanent in the physical. To deny this is to go back to the Cartesian position, and make a miracle of the whole matter—to call in some utterly foreign power to make the transition which is actually found." Windelband may have been the source of the error in both Dewey and Tennant. Neither quotes him on this point, but both were familiar with his work.

156—*Meditation* VI, op. cit., pp. 88f, *Discourse on Method,* op. cit., p. 40 and elsewhere.

157—Ibid., p. 84.

158—William Paley, D. D., Archdeacon of Carlyle, *Natural Theology or Evidences of the Existence and Attributes of the Deity, Collected from the Appearances of Nature,* first published 1802, republished Trenton, N. J., by Daniel Fenton in 1824.

159—This is the position taken by Professor James Orr in the *Christian View of God and the World,* Scribner, Third Edition, 1897. Chapter III.

160—Ibid., p. 86.

161—Ibid., p. 114.

162—Op. cit., p. 87.

163—Ibid., p. 86.

164—Ibid., p. 87.

165—Ibid., p. 88.

166—Sidney Hook, Ph. D., *The Metaphysics of Pragmatism*, Open Court Publishing Company, 1927, pp. 95f.

167—Justus Buchler, Ph. D., *The Philosophy of Peirce, Selected Writings*. Harcourt, Brace & Company, 1940, pp. 183 f. The book cited by Sidney Hook, *Chance, Love and Logic*, is a collection of Peirce's writings not now available, but most of them are included in Buchler's collection. The much more copious Harvard collection of Peirce's writings, and other works on his philosophy, are referred to in Chapter One of this thesis.

168—Tennant of course makes no reference to Hook or Peirce in this connection.

169—Op. cit., p. 88.

170—Op. cit., pp. 26f.

171—The printer's type argument is briefly stated by Tennant, op. cit., p. 111, in his summary of the teleological argument.

172—Buchler collection, op. cit., p. 223.

173—Helen Huss Parkhurst, *Beauty, An Interpretation of Art and the Imaginative Life*, Harcourt, Brace & Company, 1930, pp. 3f.

174—Certainly this is a term of which we have only one instance.

175—Op. cit., p. 88.

176—Ibid., p. 89.

177—Ibid., p. 92.

178—Op. cit., p. 317.

179—Ibid., p. 316.

180—Ibid., p. 8.

181—Op. cit., p. 91.

182—Ibid., p. 90.

183—Ibid., p. 93.

184—I understand the Biblical word "glory" to be an adequate and accurate term for "value," including both ethical and aesthetic value.

185—Charles Kingsley, *Westward Ho!* Ticknor & Fields, 1885, Chapter XVII, "How They Came to Barbados".

186—This opinion is discussed by J. S. Mackenzie, *Manual of Ethics*, Noble & Noble, 4th ed. 1925, pp. 243ff. under the heading "Natural Selection in Morals."

187—Op. cit., pp. 96f.

188—Ibid., p. 97.

189—Ibid., pp. 99f.

190—Ibid., p. 103.

191—Ibid., p. 99.

192—Op. cit., pp. 143-156.

193—Ibid., p. 112.

194—Ibid., pp. 113 f.

195—Ibid., p. 113.

196—Ibid., p. 116.
197—Ibid., p. 116.
198—See p. 215.
199—Op. cit., p. 116.
200—See the discussion of omnipotence under "The Problem of Evil' p. 231ff.
201—Op. cit., p. 120.
202—Ibid., p. 121.
203—Ibid., pp. 123 f.
204—Tennant says that the doctrine of creation out of nothing "arose in Christian theology from its need to oppose gnostic and Manichaean dualism." This is a striking anachronism, for surely the Christian writers believed themselves to be deriving their doctrine of creation out of nothing from the Mosaic tradition, the literature of which long antedates gnosticism and Manichaeanism.
205—Ibid., p. 124.
206—Ibid., p. 126.
207—Ibid., p. 129.
208—The reader may suppose that here is some profundity which the writer has failed to observe. On the contrary, one is quite familiar with this type of theological floundering at this point in reflective thinking.
209—Ibid., p. 128.
210—Ibid., pp. 129-140.
211—Ibid., p. 139 f.
212—Ibid., p. 140.
213—Ibid., p. 141.
214—*Wisdom* 11:21, (Gk. 20).
215—Op. cit., p. 142.
216—Ibid., Note C, pp. 264 ff.
217—The fallacy is patent in *Philosophy, An Introduction* by Randall and Buchler, Barnes and Noble, 1942, p. 55 f.
218—Ibid., p. 143.
219—Ibid., p. 267.
220—Ibid., p. 145.
221—Op. cit., Vol. II, pp. 157-164.
222—*Summa Theologica,* Book I, Question IX.
223—Ibid., p. 149.
224—Ibid., pp. 150 f.
225—Ibid., p. 151.
226—Ibid., p. 153.
227—Ibid., p. 154.
228—Ibid., p. 159.
229—Ibid., p. 160.
230—Ibid., p. 188.
231—The reader must keep in mind that "infinite" is not The Infinite, but merely an adjective modifying abstract nouns such as

are listed; that "eternity" is not timelessness, but merely infinite time, past and future, and that "unchangeability" is defined as dynamic, not static, self-consistency.

232—Or adjectival, for same thoughts could be clearly conveyed by such phrases as "absolute, eternal goodness."

233—Ibid., p. 166.

234—Ibid., p. 166.

235—Ibid., p. 167.

236—Ibid., p. 168.

237—The doctrine that there is but one person in the Deity, who appears or acts in three modes, now as Father, now as Son, and now as Spirit. Sabellianism denies the subject-object relationship within the Trinity.

238—Ibid., p. 170.

239—Ibid., pp. 172 f.

240—Ibid., pp. 268 f.

241—In my *What is God?* I have written at length on the doctrine of the Trinity in its philosophical as well as its religious implications.

242—Ibid., p. 176.

243—Ibid., p. 175.

244—Ibid., p. 177.

245—Ibid., Chapter VII, pp. 180-208.

246—Ibid., p. 186.

247—Ibid., pp. 186 f.

248—Op. cit., p. 15.

249—Op. cit., p. 187.

250—Ibid., p. 187.

251—Ibid., p. 188.

252—Ibid., p. 188.

253—This is a more precise illustration than those given by Tennant. He says, "in that God is love, He is not hate; in that He wills a developing moral order He is not the creator of a paradise of angels." (Ibid., p. 188.) But these terms, love and hate, and developing order, and paradise of angels, are not contradictories, such as truth and falsehood distinctly are.

254—This word is used in the Septuagint to translate *Jahweh Tsevaoth* meaning, the Lord of all the forces in the universe. See "Host" in Davis' *Bible Dictionary*, fourth edition. (Op. cit., pp. 326 f.)

255—The basic fallacy in most anti-theistic arguments based on the fact of moral evil is the assumption that what *ought not to be* also *ought not to be permitted.* For those who believe in liberty, democracy, progressive education, learning by doing, etc., this is a strange argument, indeed.

256—Ibid., pp. 188 f.

257—I never could consider it evil when I suffered pain, as I certainly did, in the good fun of college wrestling. Neither could I regard it evil when my son, at considerable expense of physical pain threw himself into his football game with all the energy he had.

258—Borden P. Bowne, *Theism*, American Book Co., 1902, p. 285.

259—Omnipotence, that is, in the determinate sense above specified.

260—Literally, "eternity" is taken to mean simply infinite time. It cannot be represented by a circle, which is always finite, and either static or repetitious. Figuratively, "eternity" may often mean a state of being, suitable for infinite time.

261—Op. cit., Appendix note, pp. 269-272.

262—Ibid., pp. 271 f.

263—Ibid., p. 209.

264—Ibid., p. 224.

265—Consideration of the different theories of immanency which Tennant discusses and rejects, must be omitted, interesting as the investigation of these systems would be.

266—Ibid., p. 209.

267—Ibid., p. 213.

268—Ibid., pp. 218 f.

269—The "monads" are said to be pluralistic, but certainly the parts and varieties of matter are equally pluralistic.

270—Ibid., p. 271.

271—Ibid., p. 219.

272—This is partly contrary to what Tennant said in 1925 in his little book on miracle. F. R. Tennant, *Miracle and its Philosophical Presuppositions*, Cambridge University Press, 1925, p. 53.

"Such [*ab extra*] activity upon physical nature, by the way, is all that can be meant by the poetic phrase 'immanence *in*' the Physical: at least from the pre-supposition of theism as distinguished from pantheism or, acosmism." By "rooted in" Tennant here seems to mean "identical in substance."

273—Ibid., p. 58.

274—*Philosophical Theology*, p. 215.

275—This paragraph is not *selbständig*, but is a criticism of Tennant, who has already proved to his own satisfaction that God is personal. We are more familiar with persons speaking than we are with persons writing books.

276—Ibid., p. 80.

277—Op. cit., p. 14.

278—Ibid., p. 18.

279—Ibid., p. 21.

280—Ibid., p. 83.

281—Ibid., p. 22.

282—Ibid., p. 67.

283—Ibid., p. 88.

284—On this subject, see Benjamin B. Warfield, *Counterfeit Miracles*, Scribner, 1918, and the brief article on "Miracle" in Davis' *Bible Dictionary*, (John Davis, *A Dictionary of the Bible*, Fourth revised edition, Westminster Press, 1927.)

285—*Philosophical Theology,* Volume II, p. 225.

286—Ibid., p. 225. The same opinion, that direct revelation would be unethical, is expressed on pages 226, 239, and frequently elsewhere.

287—Ibid., p. 231.

288—The late Professor A. E. Taylor in his *Does God Exist?* (Macmillan, 1947) is immeasurably superior to Tennant in his dealing with the bearing of primitive cultural anthropology upon theism. Taylor recognizes that there are data to be dealt with, data which a theory of religious development must not ignore. See especially Op. Cit. pp. 37 f.

289—Op. Cit., p. 228.

290—This is not a quotation from Tennant, but a reconstruction of what would have been the utmost which he had any right to say upon his data.

291—James Orr, Professor of Apologetics and Systematic Theology, United Free Church College, Glasgow, *The Problem of the Old Testament Considered with Reference to Recent Criticism,* Scribner, 1917.

292—Robert H. Pfeiffer, *Introduction to the Old Testament,* Harper and Brothers, 1941, Fifth edition, xiii plus 917 pages, p. 755.

293—*Philosophical Theology,* p. 229.

294—J. O. Buswell, Jr., *Behold Him,* Zondervan, 1937.

295—Op. Cit., Vol. XXXVII, No. 6.

THE GOD-MAN

"I and the Father are one. The Jews took up stones again to stone him. Jesus answered them, Many good works have I showed you from the Father; for which of those works do ye stone me? The Jews answered him, For a good work we stone thee not, but for blasphemy; and because that thou, being a man, makest thyself God. Jesus answered them, Is it not written in your law, I said, Ye are gods? If he called them gods, unto whom the word of God came (and the scripture cannot be broken), say ye of him, whom the Father sanctified and sent into the world, Thou blasphemest; because I said, I am the Son of God? If I do not the works of my Father, believe me not. But if I do them, though ye believe not me, believe the works: that ye may know and understand that the Father is in me, and I in the Father. They sought again to take him: and he went forth out of their hand." (John 10:30-39 R.V.)

A man in flesh and blood stands before a crowd of men and claims, "I am identical with God." Yet clearly he is a man. He breathes and gesticulates. He speaks in common words. Some of those present have seen him exhausted with fatigue, or hurt with disappointment; some have seen him normally sleeping.

For a man to claim to be God is blasphemy! To those men, as to disciples of Kierkegaard and Barth in our day, God and man are contradictory terms. God might flash down into the life of a man for an irrational instant, but for a man whose life is bonded into time by such things as genealogies, a birth place, and a little town where he grew up,—a man who taught historical truth added to historical truth (the historical tradition of revelation and not the timeless view), for a man who founded on a "rock" which could be critically examined, an assembly of people who were to proclaim God's Word to other people,—for such a man to say, "I am identical with God," is blasphemy!

Ancient custom demanded that society should directly express its abhorrence of such a sin by hurling stones at the offender until he was dead. Therefore the crowd who heard the offensive words "began to pick up stones to stone him."

But the claim might be true! *God could* become man; God and man are not contradictory terms. And if God could become man, might this man not be the long expected Immanuel, the Son of God, the "son" of the race (Isaiah 9:6) who was to be called "Mighty God"?

In the face of their sinister motions, seeing stones in many hands and dark fury in all faces, Jesus forces a clear issue. The works of his hands and the conduct of his life had been such that Peter (Acts 2:22) could remind a similar mob at a later time of "Jesus of Nazareth, a man approved of God unto you by mighty works and wonders and signs which God did by him in the midst of you, even as ye yourselves know."

The fanatical leaders of the mob, in self-righteous zeal, face the issue squarely. "Not for any good work are we stoning you," they shout back at him, "but for blasphemy; namely that you, being a man, are making yourself out to be God."

"But God *could* become a man without ceasing to be God; my claim might be *true!* In that case it would not be blasphemy." This is the substance of Jesus' reply.

The ancient Jewish Scriptures clearly teach that man is made "in the image of God." There is a "God-related element" in every man. A square cannot become a circle while remaining a square, because the two concepts are mutually exclusively contradictory. But this is not the case in the relation between God and man. Men are referred to as related to God, and may even be addressed as, in a certain sense, gods.

Jesus cites a most extreme example. "Is it not written in this law of yours, 'I said, Gods are ye!'" said Jesus quoting from the eighty-second Psalm. The men thus addressed in the Psalm were not good men, but evil,—about to suffer death under the righteous judgment of God. Jesus points out that even such men are so related to God that the Word of God came to them. If God's Word can come to (we are tempted to translate *egeneto* "happen to") men who have rejected it, then God and man are not mutually exclusive. God is not angry with stones and stars. They are his handiwork: they are not made in his image as all men are. Even the wrathful judgment of God against wicked men proves that God and man are not mutually exclusive terms. Thus the historical incarnation is possible.

It should hardly be necessary to point out that Jesus does not put himself on the plane of the persons addressed as gods in the eighty-second Psalm. His argument is,—If even such men may in a sense be addressed as gods, no one ought to question for a moment the Eternal Son of God whose credentials in word and work are so clearly set before you. Though he is indeed man in all humility, yet he is the Son of God, that is as we say more technically, "the same in substance, equal in power and glory." He is the Eternal Son "whom the Father has set apart and sent into the world."

The final appeal of Jesus to this hostile group ought to ring out to our mystical groping religionists of today. The American Standard translation is "that ye may *know* and *understand* . . ." but Jesus did not use two different verbs. He used significantly two different tenses of the same verb. He said "that you may *come to know* [ingressive aorist] and *keep on knowing* [progressive present] that in me is the Father and I in the Father." Paul expresses the same truth in the words (Colossians 2:9) "in him dwells all the fullness of Deity in bodily form." This truth the Barthian movement is willing to recognize as an occasional flash, but not as a tangible fact of permanent historical revelation. They say, "We have religious experiences in which we see God in Christ; sometimes we catch a glimpse of God in other Bible characters." But that God stands steadily before us in true historical perspective, that the Jesus of history is fully God, is what we really need to know. God the "wholly other," the contradictory, is no God at all. The God-Man Jesus Christ is my personal Savior.

296—*Philosophical Theology*, Vol. II, p. 235.

297—He does not even mention the synoptic problem, hence I shall refrain from summarizing the data which I have presented elsewhere, showing that the picture of Jesus of the so-called Q source, the earliest alleged document of the critical theory, of the synoptic gospels, is a picture of the alleged God-Man.

Tennant apparently is not familiar with the more recent critical approach to the life of the historical Jesus, the *Form geschichtliche Methode*—hence I shall refrain from presenting my material showing that *Form Geschichte* is another case of hydrofluoric acid which dissolves the test-tube and all. *Form Geschichte* will dissolve any historical character into mythology.

298—Ibid., p. 236 f. I had almost thought that Tennant had read a book review which I wrote nearly twenty-five years ago (Arthur Cushman McGiffert, *The God of the Early Christians*, Scribner, 1924, reviewed by me in *The Bible Today* for September, 1925, Vol. XIX, No. 12), for I do make just those charges to which Tennant refers, and upon abundant evidence.

299—Quoted from Schweitzer's *Quest of the Historical Jesus* in B. B. Warfield's *Christology and Criticism*, Oxford Press, 1929, pp. 184 f. The latter work is a detailed expose of the *a priori* anti-supernaturalistic approach of the school of thought which Tennant has accepted.

The article "Critique of Philosophies of History" by Prof. Maurice

Mandelbaum of Dartmouth in the *Journal of Philosophy* for July 1, 1948 (Vol. XLV, No. 14) gives an interesting case for the factual aspects of empirical historiography. One need not accept his broadside attack upon all philosophies of history in order to appreciate the incisiveness of his criticisms of the *a priori* method.

300—Ibid., p. 237 f.

301—Of course, outside the bounds of this present thesis.

PART II

ANALYTICAL SUMMARY OF DEWEY'S EMPIRICISM

INTRODUCTION

The delimitations of subject matter of Part II are, of necessity, extreme. This is not a study of John Dewey's philosophy as a whole, but merely of his empiricism. Furthermore, the study here undertaken is limited by the fact that the purpose of this portion of the thesis is to compare his empiricism with the empirical philosophy of F. R. Tennant.

The last mentioned delimitation does not mean that Dewey's empiricism will be distorted nor that important areas of it will be neglected. It does mean that an outline will be pursued which has been found applicable to both Tennant and Dewey, namely, the investigation, first, of empiricism in the area of psychology, secondly, of empiricism in the area of epistemology, and thirdly, of empiricism in the area of metaphysics. Some students of Dewey's philosophy will immediately object to the last two points of this threefold outline of investigation. The negative elements in Dewey's theory of knowledge, and in his theory of being, are so striking that some have even said that he has neither epistemology nor ontology. To this criticism I should reply that even if it were true that Dewey has no epistemology and no ontology, nevertheless, these areas could be investigated under the headings given and the results which on that supposition would be negative, set forth. However, facts will be presented showing that Dewey, indeed, has rather definite theories of knowledge and of being.

It is not denied that another outline might have been pursued in the investigation of Dewey's empiricism. All the subject matter might have been set forth under one heading, "The Theory of Inquiry", which is the sub-title of his last major work, *Logic*. The materials relating to psychology, epistemology, and metaphysics might have been scattered through the investigation of functional processes. Nevertheless, pursuing a different outline, the facts would have made it plain that Dewey has a psychology, an epistemology, and an ontology. No injustice, therefore, is done to his empiricism by employing the proposed outline, and the use of the outline made up of these three main headings is a practical necessity for purposes of comparison with the empiricism of Tennant.

CHAPTER IV

DEWEY'S PSYCHOLOGY

Dewey's latest systematic statement on his psychology is found in that portion of his rejoinder in the Schilpp volume[1] in which he replies to Professor Allport's chapter entitled "Dewey's Individual and Social Psychology". In this brief statement several important general aspects of his psychology are made plain.

(1) Dewey has not in his recent years specialized in psychology. He refers to ". . . my scattered and, of late years, unprofessional writings . . ." in this field. And he says, ". . . I have failed to develop in a systematic way my underlying psychological principles."

(2) Nevertheless, Dewey feels that he has kept abreast of the times in psychology. Replying to a criticism of Allport's he does not admit deficiency on his own part in the understanding of recent progress. He says

> I have made the mistakes of treating as incidental certain psychological matters which are central in the present state of philosophy. I had no right to assume that philosophical readers were sufficiently in touch with newer developments in psychology so that my references to the latter could be left with little elaboration. I now see how far contemporary philosophy as a whole is from having appropriated and digested the main principles set forth even in the psychology of William James.[2]

(3) Dewey considers psychology as of fundamental importance for philosophy. In the quotation last given it is clear that he regards recent development in psychology as of "central" importance for philosophy at the present time. Above on the same page he says

> . . . I regard psychology as indispensable for sound phil-

osophizing at the present juncture.

He states that

> . . . a sound psychology provides the basis for a theory of the nature of experiencing, and of its different modes and their connections with one another.

(4) Dewey characterizes his own psychology in several striking phrases which will afford a key to the systematic understanding of it. He refers to "my socio-biological psychology." Again he designates his view as "biological-cultural psychology," contrasting it with "pre-biological psychology."

(5) Dewey's view of the psychological "subject" seems at the outset quite radically different from Tennant. He says

> . . . I am obliged to admit what he [Dr. Allport] says about the absence of an adequate theory of personality. In a desire to cut loose from the influence of older "spiritualistic" theories about the nature of the unity and stability of the personal self (regarded as a peculiar kind of substantial-stuff), I failed to show how natural conditions provide support for integrated and potentially equilibrated personality-patterns.[3]

Of the psychological "subject" Dewey says

> . . . from the standpoint of a biological-cultural psychology, the term, "subject" (and related adjectival forms) has only the significance of a certain kind of actual existence, namely a living creature which, under the influence of language and other cultural agencies, has become a person interacting with other persons (concrete human beings).[4]

Denying that the psychological subject is a substantive entity, or in Dewey's language, "a peculiar kind of substantial-stuff" with "unity and stability," would seem radically different from Tennant's view of the subject as a Cartesian *res cogitans*. Indeed, there is a difference. Tennant is a dualist in the sense of the word defended in this thesis, though he rejects the term. For him the soul is a substantive entity, while for Dewey, it is a behavior function of non-material, non-substantival processes.

However, the two views are not so far apart as might be supposed. Tennant in his spiritualistic pluralism and monadism, coupled with his notion of the pre-existence of the soul, is really not so far from Dewey's conception of an integrated personality developing in a non-material vitalistic emergentistic social complex.

Dewey's most explicit summary of his own view, in the passage in the Schilpp volume which we are now considering, is as follows:

> . . . although the psychological theory involved is a form of Behaviorism, it differs basically from some theories bearing the same name. In the first place, behaviour is not viewed as something taking place in the nervous system or under the skin of an organism but always, directly or indirectly, in obvious overtness or at a distance through a number of intervening links, an interaction with environing conditions. In the second place, other human beings who are also acculturated are involved in the interaction, including even persons at a great distance in space and time, because of what they have done in making the direct environment what it is.[6]

With reference to the action of persons at distance in space and time, Dewey further explains:

> For although distant conditions are not present in *persona propia,* they are present through their effects . . .[6]

Earliest Period in Dewey's Psychology

The earliest period in Dewey's psychology begins with his graduate studies in Johns Hopkins from 1882 to 1884, where he came under the influence of experimental psychology of G. Stanley Hall, and the Hegelianism of G. S. Morris. This period extends through 1903, the year in which the volume, *Studies in Logical Theory,* was published at Chicago. Morton G. White admirably covers this portion of Dewey's life in his excellent work, *The Origin of Dewey's Instrumentalism.*[7] White says of Hall's influence on Dewey

> Hall's lectures seem to have led Dewey to study experimental psychology. The emphasis is upon the word "study," for Dewey never really became an experimental psychologist in the way other students of Hall did. However, intensive reading brought a wealth of information concerning the

latest works in physiological psychology and psycho-physics.

Dewey never adopted Hall's methods, and did not share Hall's contempt for Hegelianism. White continues

> Dewey's *Psychology* which appeared in 1887 thus testifies to the impact of Hall's teaching, but it also evidences Morris' influence. The *Psychology* was a valiant attempt to retain as much of Hegel and neo-Hegelianism as could be retained by one who extolled the "new psychology."[8]

White records the fact that Hall in a review of Dewey's *Psychology* in *The American Journal of Psychology,* November 1887

> . . . attacks Dewey for his attempt to impose Hegelian dogma upon the facts of experimental psychology—presumably the facts to which he [Hall] led Dewey . . .[9]

White makes it plain that Dewey was far more strongly influenced by G. S. Morris than by Hall or anyone else during the first fifteen years of his work as a teacher. In his chapter entitled "George Silvester Morris,"[10] White interestingly traces Morris' opposition to the sensationalistic psychology of the British empiricists from Locke to John Stuart Mill.[11] He shows that Morris' attack upon sensationalistic psychology was the foundation for Dewey's attack upon "the spectator theory of knowledge."[12] Morris distinguished sensationalistic psychology from "rational psychology". The latter, says White, "treats of the soul 'as an entity, a variously self-manifesting power, and a purpose which it is itself to realize' . . ."[13]

This attitude of Morris' as described by White, is exactly the attitude taken by Dewey in his little known article in the *Bibliotheca Sacra,* 1886, to which fuller reference is made below.

White says of Morris on the subject of innate ideas:

> Locke had had the temerity to question the hypothesis of innate ideas . . . And on the basis of empirical psychology! Morris is shocked.[14]

In the defense of innate ideas Dewey concurred with Morris.

It was through the influence of Morris that Dewey became an idealist in the earliest active years of his professional career. It is thus interesting to note that Dewey, like Tennant, began his philosophical career as an idealist.[15] White says

> The story is not simply a story of his taking over idealism intact, but as we know, a tale of transformation, revision, and overhauling.[16]

Of Dewey's present position White says

> Dewey is not an idealist, he is what an idealist becomes when he incorporates the results of modern biology, psychology, and social science.[17]

White interestingly traces the gradual development of Dewey in idealism and psychology. He says

> Morris pushed Dewey further and further in the direction of Hegelian idealism. He prepared him for the work of Green, Caird and the young British idealists . . . But at the same time Dewey, under the tutelage of Hall, immersed himself in the literature of the "new psychology." The result of these two interests was a large-scale attempt throughout the eighties to state the relation between idealism and psychology.[18]

Before the publication of his book entitled *Psychology* in 1887, Dewey published in *Mind,* in 1886, two papers entitled "The Psychological Standpoint," and "Psychology as Philosophic Method." In these articles it is clear that Dewey regarded mechanical interaction such as the bumping of billiard balls, as dualistic, but he regarded the interaction of parts of an organism as not dualistic. This formulation of opposition to dualism he took over from Morris.[19] Formal logic was bitterly opposed by Dewey[20] and instrumental logic was suggested. The relationship between the knower and the thing known must not be regarded as mechanical and dualistic, but must be regarded as parts, or aspects, or functions of an organismic whole. This led Dewey to the introduction of his interesting doctrine of "universal consciousness,"[21] which gave him, as White says, "the core of naturalism . . ."

White states that by 1892 Dewey had dropped the universal consciousness of universal self as superfluous.

> . . . once the dubious aspects of this entity are dropped, Dewey has the outline of his present theory of knowledge. He need only convert the universal consciousness into nature, the individual into the organism, and the object of knowledge into environment. The result, translated into naturalistic

> terms, is that the organism and its environment are both parts of nature. It follows that whatever holds true of nature in general, holds true of human organisms in particular, and that the activity or capacity known as "knowledge" appears in man in accordance with the principles of organic evolution.[22]

In the biography of John Dewey written by his daughters, which is the first chapter in the Schilpp volume,[23] Dewey is quoted as saying that "Hegel's idea of cultural institutions as an 'objective mind' upon which individuals were dependent in the formation of their mental life," was modified by the influence of sociology. He continues

> The metaphysical idea that an absolute mind is manifested in social institutions dropped out; the idea, upon an empirical basis, of the power exercised by cultural environment in shaping the ideas, beliefs, and intellectual attitudes of individuals remained. It was a factor in producing my belief that the not uncommon assumption in both psychology and philosophy of a ready-made mind over against a physical world as an object has no empirical support. It was a factor in producing my belief that the only possible psychology, as distinct from a biological account of behaviour, is a social psychology.[24]

This statement from Dewey himself corroborates White's interpretation of the function of the universal mind in the development of Dewey's psychology. From the Hegelian idealism in which Dewey had regarded the universal mind and the individual mind as quasi-identical ontological entities, Dewey proceeded to a position in which the only ontological entity to be recognized is the on-going of the social process, not society as such, analyzable into interacting ontological units, but a social process conceived as a kind of non-material biology. The noun becomes the participle, *mind* becomes *minding*. There is no physical-mental dualism. The only ontological category is *events*.

In April 1886, the same month in which the second of the above mentioned articles on psychology appeared in *Mind*, Dewey had an article in the *Bibliotheca Sacra*[25] entitled "Soul and Body" which is not referred to by White, and which is also omitted by the biographers in the Schilpp volume and by Allport in his section on Dewey's "Earliest Psychological Work".[26] Because of Tennant's emphasis on the "soul" in his psychology, Dewey's article, "Soul and Body," is of greater importance for the purpose of this thesis than other contemporaneous articles of Dewey's which have attracted more attention. It is, more frankly than some of Dewey's other early writings, in the field in which Tennant's interest is centered.

"There are," says Dewey, in the pious pages of ponderous orthodoxy of this old, scholarly theological journal, "certain facts declared by physiology, and psychology." These facts are capable of explanation by some kind of reasonable principles and conceptions, and it is possible "to render a consistent, intelligible account of them . . ."

> To say that this cannot be done is simply to say that there are facts in the universe which are utterly irrational, which have no meaning. And the one who has the capacity of discovering by his reason that certain facts are non-rational to his reason, is not the one whom I address.[27]

The first step in showing that the facts of physiology and of psychology can be harmoniously explained, is to show that the nerve cells and nerve fibers work together as a harmonious unity to such an extent that

> . . . the brain is no more the organ of mind than the spinal cord, the spinal cord no more than the periferal endings of the nerve fibers. The brain is undoubtedly most closely and most influentially connected with the life of the soul, but its connection is of the same *kind* as that of every other part of the nervous system.[28]

From this fact of the unified functioning of the entire nervous system, Dewey concludes

> Now this gives us but one alternative: either there is absolutely no connection between the body and soul at any point whatever, or else the soul is, through the nerves, present to all the body. This means that the psychical is immanent in the physical . . . All, or none, is the disjunction forced

> upon us. The immanence of the psychical in the physical is, therefore, the foundation of our future enquiry.[29]

The development of the thought continues

> . . . *the unitary nervous activity is evidently that known as reflex action* . . . our conclusions are as follows:
>
> There is a fundamental mode of nervous activity; in this the psychical is immanent. This mode of activity is an adjusting activity; therefore, the psychical is immanent in the physical as directing it toward a given end. It is not only immanent but it is teleologically immanent.[30]

Dewey next presents the famous passage from Wundt's *Mechänik, der Nerven, und Grundzüge der physiolgischen psychologe,* Vol. II, p. 404, in which Wundt describes the adaptive behaviour of a decapitated frog. The data are so familiar to students of psychology, and so clearly illustrate the wholistic behavior of the nervous system even without the brain, that I need not repeat or summarize the quotation. Dewey concludes

> . . . it is enough for our purpose to take our stand upon this elementary form of reflex action, and thus cut the very standing ground from under the feet of the materialist.
>
> This, then, is our conclusion: the psychical is immanent in the physical; immanent as directing it toward an end . . . We find, therefore, that in the simplest form of nervous action there are involved categories transcending the material; principles to which matter, as such, is an entire stranger . . . In nervous action we find the category of teleology. The act is not determined by its immediate antecedents, but by the necessary end. We have gone from the sphere of physical to that of final causation, and thereby we recognize that we have gone from the purely physical to the immanence of the psychical in the physical, directing the latter for its own end and purpose.[31]

In opposition to materialism Dewey argues that the concept of matter merely

> means the principle of physical causation; the constant and invariable relations of antecedent and consequent. To attempt to get more into the conception of matter is unscientific in that it is unwarranted . . . when we finally look for some in-

> dependent speck of matter, there is none there. It has all been spiritualized. Or, if there be one speck there, it must be defined in terms of the conception of matter just laid down [that is, not *res extensa* as substantive entity, but merely "invariable relations of antecedent and consequent."] . . . with the appearance of teleological action upon the scene, we have passed from the realm of material into that of the psychical immanent in the material.[32]

Dewey's vigorous attack upon materialism proceeds to ferret it out from behind its hiding place in biological evolution.

> It [materialism] generally hides itself behind imposing scientific terms connected with the theory of biological evolution. It uses "variations" and "selection", and "survival of the fittest" and "heredity", and thinks that in the end it has got something out of nothing—purpose out of accident . . . Darwinism, far from overthrowing this principle, [teleology] merely establishes it as a general law of the universe, of the structure of things. Nature is made teleological all the way through . . . the psychical is teleologically immanent in the physical. The simplest nerve action is not so simple as to exclude the adaptive, purposive factor.[33]

This is almost identical with Tennant's view of the teleology of evolution. However, it is not Dewey's mature view. A year later (June 1887) in the *Andover Review*[34] he took strong supernaturalistic ground and opposed all evolutionary ethics. Now, of course,[35] he is a thorough-going naturalistic evolutionist and denies cosmic teleology.

Describing the "consentaneous action of the whole organism," Dewey says

> Expressed in its lowest terms, there is *sensation* as well as adjustment of all the activities to one end. Those who have asserted the spirituality of the soul have often begun to build too high. They have taken as their fortress abstract thought, or the free-will. Now these offer, indeed, an impregnable refuge, but, in opening the campaign from there, ground is abandoned which, by all territorial rights, is the eminent domain of the spiritual soul.[36]

Dewey holds that mere sensation is the broad foundation on the basis of which the spirituality of the soul may be established. This is very much like Tennant's elementary data of psychology. There is a difference, however. Tennant, the reader will remember, begins with the fact of "so-called knowledge by so-called subjects of so-called objects." For him the object is numerically other than the subject, and, though it may be spiritual in its constitution, it is distinctly other than the knowing process. For Dewey, even in the article now under discussion, while it is true that he speaks as though the soul were an entity in itself, yet he not only argues for the spirituality of the soul as an entity, but also, on the negative side, argues for the *non-materiality* of matter.

Dewey argues that the materialists and semi-materialists, like Huxley and Tyndall,

> . . . always conclude their baldest assertions of the dependence of the mind upon the brain with some such statement as this: The passage from the physics of the brain, from a nervous irritation, from a change of motion and matter, to a fact of consciousness, to a psychical state, to a sensation is unthinkable, is an inexplicable mystery, a gulf which imagination cannot span; and so on, *ad libitum* . . . no better evidence that the physical and the psychical are not related as cause and effect, . . . could be adduced than the utter "mysteriousness" hanging with "inexplicable" persistence over all attempts to get one out of the other . . . Let us hope that the idea of the unity of all thought will finally dawn upon the scientific men who have taken the contract of philosophizing for the English-speaking portion of the nineteenth century . . ."[37]

Dewey, indeed, admits some function of the body with reference to the activities of the soul. It is not causal but it is occasional. By the body, however, he does not mean a material substantive entity, but merely "the principle of invariable relations of antecedent and consequent." He says

> Sensation, and *a fortiori,* all higher physical activities, testify to the creative, self-determining power of the mind, with the proviso attached that this power has been called

> upon [by the stimulus of the body, not as a cause but as an occasion] to act. There is just the same mystery about it that there is about every other fact in the universe, the mystery that there should be such a fact at all.[38]

It is difficult to see how the body as an occasion is any more rationally conceivable than the body as a cause. In fact, as Dewey defines the occasional action of the body stimulating the soul, he has no justification for denying that such action is causal. He does point out that when a bodily stimulus is administered to consciousness things happen which cannot be accounted for *merely* as mechanically derived from the stimulus. When the decapitated frog performs intricate maneuvers to wipe off the stinging acid, it does not behave as an automobile. There is no machine on the market as yet which will itself replace a flat tire with a spare. This fact, however, is no evidence against causative interaction between body and mind, but is evidence of what should be called "trigger" action. The bodily stimulus as Dewey describes it is causal in all but the word, but it is not the only cause any more than the pulling of the trigger is the only cause of the flight of the bullet to its target.

The words quoted above, "There is just the same mystery about it that there is about every other fact in the universe, the mystery that there should be such a fact at all," seem much wiser than Dewey's application of them. These words in effect are a recognition of the distinction between non-rational brute fact, and rational logical implication. Dewey's words might just as well be applied to the causal interaction relationship between *res cogitans* and *res extensa*. There is no logical contradiction in recognizing such causality. Heterogeneity of some kind is essential to the very concept of interaction. Causal interaction between *res extensa* and *res cogitans* has merely the mystery that it is a fact, and, indeed, it is the most commonly experienced fact in all the realm of empirical data.

Dewey differs from Tennant at this point in his psychology in that the latter recognizes the objective noumenal world including the body as causal in its interaction with the subjective mind. Dewey denies this causality and with patent[39] self-contradiction endeavors to substitute the word occasional for the word causal.

However, at this point both Dewey and Tennant agree in that both regard interaction between non-living matter and consciousness, as inconceivable (Dewey), or at least difficult to conceive (Tennant).

Dewey continues his explanation by stating that

> The soul is not only immanent in the body [defined as above], as constituting its unity and end; it is transcendent to it, as transforming its activities for its own psychical ends. . . . These two principles, of the immanence and the transcendence of the soul . . . cannot be left in this isolated way. They must be shown in their unity as necessarily involving each other.[40]

In other words the unity of immanence and transcendence must be maintained against dualism. Dewey proceeds to show that in functional neurology the so-called lower activities are localized in the nervous structure, whereas the so-called higher activities seem not to be localized but involve the nervous system as a whole. Thus he says

> The body as a whole is not only the organ of the soul, but the various structures of the body are differentiated organs, of various capacities and tendencies, of the soul. . . . nowhere does the will act without a structure already formed for it. . . . the mind does not deal with ultimate elements; it always has integral wholes which it may grasp and use without endeavoring or needing to resolve them. . . . The lower the function, the more perfectly and narrowly it is localized. The wider its scope, and the greater its consequent necessity the more complete and spatial, so to speak, its localization.[41]

Dewey proceeds to answer Mr. Bain, the noted materialist, who had argued that the cells in the brain correspond to ideas and that the fibers correspond to association. Dewey shows that for all ideas there must be many cells and fibers involved, that no idea as such has any localization, and he continues

> Localization of function is, in short, only the physiological way of saying habit. The organization of function is not indwelling in the brain as so much matter; it has been *learned* by the brain and learned through the tuition and care

> of the soul. By no twisting can the phenomena of localization of function be twisted into the support of materialism.[42]

Dewey describes the soul as *writing* "in the plastic brain and spinal cord." And continues

> *Litera scripta manet.* By the performance of its acts the soul gains a mechanism by which to perform them again the more readily, economically, and perfectly . . . The soul is immanent in the body just so far as it has made the body its organic instrument.[43]

The complete idealism of Dewey's psychology is revealed in the culminating statement of his theory of immanence and transcendence.

> The body is not an external instrument which the soul has happened upon, and consequently uses, as a musician might happen upon a piano. The body is the organ of the soul because by the body the soul expresses and realizes its own nature. It is the outward form and living manifestation of the soul. ". . . It is not merely an organ to be conceived as distinct from our personal self, but *it is our proper self as existent in space,* in the order and under the laws of nature."[44]

Thus it appears that immanence is localization but transcendence is inherent in the fact that this localization has been brought about by the soul itself. The body "*is* the outward form and living manifestation of the soul." The soul has created its own body. It is, in fact, "a living and acting force which has formed, and is constantly forming the body, as its own mechanism."

"Facts are stubborn things." Realistic dualism will insist upon showing its features. Dewey having dematerialized matter and identified the body as merely the form of the soul, is reminded of his war against gnosticism and mysticism, and in his next step, almost shouts triumphantly that the activities of mind are never lost "not only in some supralunary sphere, but down here in the world of *matter.*" (The Italics are not in the original.) But for the realistic dualist, mind has never had to seek its refuge in some gnostic sphere beyond the moon. It has always been in intelligible interaction with matter in time *chronos,* and on occasion *kairos.* Reason, *'o Logos,* became human, *sarx,* and took residence among us. All that Dewey says about the instrumentality of the body for the soul is quite congenial to a dualist, but is not the body also a physical fact in the material world which the minister, the undertaker, and the mourners must dispose of when it has ceased to function for the immanent mind? If Dewey were questioned about the quotation last given above, he would doubtless explain that "down here in the world of matter" merely means "here in the principle of invariable antecedent and consequent," where "it has all been spiritualized."

The material on the last page and a quarter of Dewey's article under review[45] is very revealing. We do not find here Dewey's doctrine of the "universal consciousness" although in the very same month in his article in *Mind* he insisted that there is a "universal consciousness" or "absolute consciousness" or "universal self" which can be known only through its manifestations in man.[46] Such an idea would have been repugnant to the editors of the *Bibliotheca Sacra*. That journal was then, and continued for years to be, a citadel of learned orthodoxy. George Frederick Wright, who, with increasing orthodox stringency, served as editor for many years until his death in 1921, was in 1886 one of the three editors. He would not have endorsed Dewey's Hegelian pantheism. In fact, in the same volume with Dewey's article, an article entitled "The New Theology" vigorously describes and attacks that position. Dewey would not send an article defending Hegelian idealistic pantheism to the *Bibliotheca Sacra* in 1886 such as he concurrently published in *Mind*.

Instead we have an article concluded with the championing of historic catholic Christianity, Dewey taking his stand with Jesus and Paul as a believer in the resurrection of the dead! His last word is

> Let it be no surprise that physiological psychology has revealed no new truth concerning the relations of soul and body. It can only confirm and deepen our insight into the truth divined by Aristotle and declared by St. Paul, and with good reason.
>
> *"Das Wahre war schon länget gefunden."* [The truth was found long ago.]

But what were the sayings of Jesus and of Paul which Dewey quoted to his own advantage, and in what sense did he mean the words when he said

> It is by no accident or meaningless chance that we read in The Apostles' Creed those sublime words: "I believe in the resurrection of the body."[47]

From Jesus Dewey quotes the words, "Except a corn of wheat fall into the ground and die it abideth alone: but if it die it bringeth forth much fruit." (John 12:24) And from Paul he quotes, "That which thou sowest is not quickened except it die; and that which thou sowest, thou sowest not that body that shall be, but bare grain, it may chance of wheat or of some other grain; but God giveth it a body as it hath pleased Him and to every seed his own body. . . . It is sown a natural body, it is raised a spiritual body. There is a natural body and there is a spiritual body." (I. Cor. 15:36-44) Dewey proceeds to "interpret"

> Christianity has no sympathy with those who have such a superfine fear of materialism that they etherialize the soul past all contact with the body. It knows that in the body the soul is incarnate; that through the soul the natural body comes to be a spiritual body, as the soul works itself out, and realizes itself in it. The soul does apparently die in the body; it hides itself so effectually that the materialist says there is no soul; but it has died as dies the seed, to quicken and transform the body.
>
> . . . catholic historic Christianity, having such a confession [as the Apostles' Creed] on its lips, has no alliance with the metaphysical dualism of spirit and matter, and no fear of the exactest demonstration of physiology regarding the closest connections of body and soul.

In other words the resurrection of the body means that the body is found to be only "the outward form and living manifestation of the soul."

But has ancient literature no right to its historico-grammatical meaning! It is not a question of the historicity of the fourth gospel. It is evident from the context that whoever wrote the words, "Except a grain of wheat fall into the ground and die . . ." wrote them as the expression of a man who definitely expected that he would shortly die by crucifixion.

No competent[48] critical student of the literature of the first century of the Christian era doubts that the words, "It is sown a natural body, it is raised a spiritual body" were written by a man who, though first he had hated the Christian testimony, yet subsequently had become convinced that Jesus was alive again after his death, that is, alive in the body after his body had expired and had been embalmed and entombed.

Certainly the readers of the *Bibliotheca Sacra* in 1886 need have had "no fear of the exactest demonstration of physiology regarding the closest connections of body and soul." But in that year and in that quarterly journal, with reference to the words "I believe in . . . the resurrection of the body" in the Apostles' Creed, in saying that "catholic historic Christianity, having such a confession on its lips, has no alliance with the metaphysical dualism of spirit and matter," Dewey must have known that he was not giving a correct exegesis according to the science of literary criticism. He must have known that the Hegelian view "that through the soul the natural body comes to be a spiritual body," is not the hermeneutical meaning of "the resurrection of the dead" in the Apostles' Creed.

And yet one must not judge Dewey out of his historical setting. It must be remembered in the first place that he was a Hegelian. The Hegelian *Negativität,* or, as some call it, the irrationalistic dialectic, runs all through Dewey's philosophy and is to this day a governing motive. This is evident in his radical opposition to formal logic, and in his bitterly anti-dualistic epistemology and metaphysic.[49] The Hegelian dialectic is directly opposed to the laws of identity, non-contradiction, and excluded middle. Contradiction is one of the steps by which the *Begriff* advances. It would seem probable *a priori* that Hegelian dialecticians would not be much concerned about the science of hermeneutics. Hegelian theologians have very commonly brushed aside the grammatico-historical meaning of ancient literature, and have been accused of being quite irresponsible in assigning to historically established terms whatever double meanings may be convenient for the advancing of their own views and the pacifying of conservative constituents.

Royce[50] says of Hegel's philosophy

> . . . not only the theory of knowledge cannot be separated from metaphysic, but also the theory of the constitution of the universe is identical with the theory of the process by which we come to know the universe . . . knowledge and its objects, which Hegel himself ultimately means by thought and by being, are not only . . . correlative, but in essence identical . . .

This is an excellent statement of Dewey's anti-dualistic epistemology and ontology from 1886 (not including the *Andover Review* article of 1884 referred to below), with continuous uninterrupted emphasis, to his most recent writings.

I suggest that it is reasonable to recognize that one who is thoroughly characterized by Hegelian *Negativität,* and Hegelian opposition to the distinction between knowing and being, is not likely to be meticulous in the matter of accurate interpretation of historical literature. He belongs to a movement whose war cry is *the elimination of discriminative distinctions,* and the inclusion of elements which, for believers in formal logic, are defined as *contradictions.*

Theology and law are two disciplines in which accurate use of terms well established in usage is of great importance. In our culture, in spite of all the arguments of all the lawyers, most people seem to believe that legal words and sentences have their meanings, and that the courts *ought,* at least, to make their decision as to these meanings on objective critical grounds. In theology, however, neology is winked at or thought clever by many religious and social leaders. Both Tennant and Dewey belong to a generation in which a scholar would blush to be caught misquoting or misconstruing Bertrand Russell, but in which teachings traditionally ascribed to Moses, Isaiah, Paul, and especially Jesus, can, with impunity, be subjected to the most fantastic distortions.

Dewey's article "Ethics and Physical Science" printed in the *Andover Review* for June 1887,[51] briefly noted by White,[52] is second in importance only to the *Bibliotheca Sacra* article of 1886 reviewed above. Importance, I mean, for the study of such elements in Dewey's early years as are related to the empiricism of F. R. Tennant.

Dewey begins with the words

> The ever-old problem of the Divine and the Human is still with us, unchanged in its abiding freshness and perennial significance . . . [other controversial subjects were discussed in other days] the battlefield of today is the human soul.[53]

After expressing strong opposition to materialistic evolutionary ethics, Dewey continues

> In spite of the vigor and ardour with which these ideas are advocated, some of us, at least, remain unmoved. We believe that the cause of theology and morals is one, and whatever banished God from the heart of things, with the same edict excludes the ideal, the ethical from the life of man. Whatever exiles theology makes ethics expatriate. . . . We are convinced that the physical interpretation of the universe shuts out those ideas and principles which are fundamental to ethics.[54]

Dewey next states the case for evolutionary ethics with considerable plausibility

> . . . the evolution of the social organism sets before us a definite law, which enables us to extend vastly and deepen indefinitely the ethics of previous empirical schools, without abandoning the sure ground of experience.[55]

Why Dewey, after having accepted the ethics of Darwinism in his *Bibliotheca Sacra* article published in the previous year,[56] here strongly opposes the same view, is difficult to understand. We know that men's minds move forward unsteadily, not always in a smooth curve. We have seen that in the article in *Mind* in 1886 Dewey had committed himself to the Hegelian universal consciousness, the individual soul being merely an expression of the universal soul. We know that Dewey later substituted human society organismically conceived for the universal consciousness[57] and that naturalistic evolution found very convenient shelter under the latter scheme of things. It is not impossible that in 1887 Dewey's mind experienced a serious revulsion against the drift which had already begun in his thinking. There is no indication that he questioned the Hegelian pantheism to which he was committed, though of course he does not mention it in the *Andover Review,* Andover being on the conservative side in those days.

With vigor and evident sincerity he throws himself into the attack against his own evolutionary drift.

> . . . we shall challenge the right of the whole picture [evolutionary ethics described above] to be considered anything but an illusion. . . . It reflects a light which has its source in God himself. Take away this light, . . . and the picture fades out into a mere meaningless blank . . . In a single sentence the problem reduces itself to this: Can the ethical be regarded as one with the natural? [Sic!][58]

In the last twelve pages of the article Dewey takes strong supernaturalistic ground and continues bitterly to attack naturalistic evolution. He says

> Valid thinking would say that, since we have here a community of interest, a oneness of ends, which cannot be the product of physical processes, there must have been something at work, besides physical evolution.[59] . . . a spiritual interpretation of reality can alone be found a truly scientific ethics and justify the living ways of man to man. [End of article][60]

Dewey's *Psychology* published in 1887 and his *Applied Psychology,* J. A. McLellan being co-author, published in 1889, together with his work on Leibnitz published in 1888, are adequately summarized by White in his chapter entitled "The First Three Books." I have not endeavoured to go behind White's account of them. They do not materially carry forward the development of Dewey's psychology in any matters directly relevant to the purposes of this thesis. There is the same Hegelian idealism with its emphasis upon the universal mind, and the same antagonism to traditional formal logic.

The work on Leibnitz is indeed significant for its emphasis upon "activism." Leibnitz's statement, *"Substance c'est l'action,"* Dewey calls "the keynote and the battle-cry of the Leibnitzian philosophy."[61] Dewey says

> Such thought as that substance is activity; that its processes

> are measured by its end, its idea; that the universe is an inter-related unit; the thought of organism, of continuity, of uniformity of law—introduced and treated as Leibnitz treated them—are imperishable.[62]

It is evident that the activism of Leibnitz is substantially identical with the later ontology of Dewey. This, however, is not directly within the field of Dewey's psychology.

"The Reflex Arc Concept in Psychology"

Dewey's article on the reflex arc published in the *Psychological Review* for July 1896, (pages 357-370) and reprinted in the *University of Chicago Contributions to Philosophy,* 1896, Vol. I, No. 1, pp. 39-52, may well be called his greatest contribution to the science of psychology as such. Of this article Edwin G. Boring of Harvard University said in 1930[63]

> Dewey . . . made the argument against 'reflexism' in 1896. [Boring continues in a footnote] I have just reread this classic article, and it sounds to me exactly like Köhler's discussion of the same matter, a third of a century later.

Heidbreder says[64]

> Dewey's article, "The Reflex Arc Concept in Psychology," published in 1896, marks the starting point of functionalism as a definite movement. The import of this much-discussed paper is that psychological activity cannot be broken into parts or elements but must be regarded as a continuous whole. Like James, Dewey was attacking psychological atomism. . . . It was Dewey's thesis that distinctions like that between stimulus and response are purely functional and are based not on actual differences in existing reality, but on the different roles played by given acts in the total process.

The analysis of the famous article on the reflex arc should be prefaced by a contrasting analysis of the article "The New Psychology" published in the *Andover Review*.[65]

In some ways this Andover article reflects the Dewey of current date. He had already made the transition to social psychology. His concluding words describe the function of psychology, "Following the logic of life it attempts to comprehend life.[66] The article begins with a reference to "... the life of man whose unfolding furnishes psychology its material ..."[67] This is similar to an article of thirteen years later[68] in which Dewey says, "And psychology is naught but the account of the way in which conscious life is ... progressively maintained and organized."

Although in the Andover article of 1884 the soul is still the *"geistige Band,"* of psychological activity, yet the wholistic tendency of Dewey's entire career is prominent. Dewey says of the old psychology that it engaged in

> ... division of the mind into faculties, the classification of mental phenomena into the regular graded, clear-cut series of sensation, image, concept, etc.

These divisions to which Dewey takes exception, he mildly excuses on the ground that "a few broad schematic rubrics," may be useful as a means "by which to reduce ... swimming chaos to some semblance of order."

In opposition to the older psychology with its division and functions and aspects of the mind, Dewey here advocates the experimental method which will ". . . bring the Antaeus of humanity back to the mother soil of experience ..."[69]

This article of 1884 is distinctive and contrasting however in that there are strong traces of body-mind dualism. He says

> ... explanations of psychical events ... must themselves be psychical and not physiological.[70] ... the well-grounded facts that the psychological events known as sensations arise through bodily stimuli, and that the psychological events known as volitions result in bodily movements; ... in these facts [lies] the possibility of the application of the method of experimentation.[71] ... if a certain nervous arrangement can be made out to exist, there is always a strong presumption that there is a psychical process corresponding to it; or if the connection between two physiological nerve processes can be shown to be of a certain nature, one may surmise that the relation between corresponding psychical activities is somewhat analogous.[72]

Some of these phrases sound much like the parallelism of

Fullerton's dualism, mind and body separated by an impassable gulf. At other points Dewey speaks as though the bodily stimuli were *causes* of mental states and in turn caused by mental states, yet he says that physiological events cannot be "explanations" of psychical events. In the *Bibliotheca Sacra* article of 1886, as indicated above, he seeks to eliminate causality and finally spiritualizes the body entirely, reducing it to an aspect of mind. Here, however, there seems to be definitely a remnant of dualism.

In this Andover article of 1884 Dewey sharply rejects formal logic

> The chief characteristic distinguishing it [the new physiological psychology] from the old psychology is undoubtedly the rejection of formal logic as its model and test.[73] . . . the new psychology would not have necessary truths about principles; it would have the touch of reality in the life of the soul.[74]

Dewey does not put as much religion into this article, written in Baltimore, as he put into the *Bibliotheca Sacra* article of 1886 and the Andover article of 1887. However, he concludes with a great flourish in a rather badly mixed figure,—the New Psychology's "foundation" and "blood" are

> . . . the instinctive tendencies of devotion, sacrifice, faith, and idealism which are the eternal substructure of all the struggles of the nations upon the altar stairs which slope up to God. It finds no insuperable problems in the relations of faith and reason, for it can discover in its investigations no reason which is not based upon faith, and no faith which is not rational[75] in its origin and tendency . . .[76]

The article on the reflex arc concept is brief and need not be discussed at great length since it is so familiar in philosophical and psychological literature. Dewey says

> The older dualism between sensation and idea is repeated in the current dualism of peripheral and central structures and functions [in the reflex arc concept]. The older dualism of body and soul finds a distinct echo in the current dualism of stimulus and response . . . As a result, the reflex arc is not a comprehensive or organic unity, but a patchwork of dis-

> jointed parts, a mechanical conjunction of unallied processes.[77]

Here we have the modern Dewey in full force. He holds that failure to see that the "arc" is really a coordinated "circuit"

> leaves us nothing but a series of jerks . . . or else an unaccountable spontaneous variation from within the 'soul' or the 'organism'.[78]

The bulk of the article is taken up with the discussion of James' illustration of the child and the candle,[79] and a discussion of a passage from Baldwin's *Feeling and Will,* p. 60, in which Baldwin divides psychological behavior into stimulus, attention, and reaction. Dewey says

> What we have is a circuit, not an arc or a broken segment of a circle.[80] It is one uninterrupted, continuous redistribution of mass in motion. . . . The same sort of thing is true when we describe the process purely from the psychological side. It is now all sensation, all sensory quale; the motion as physically described, is just as much sensation as is sound or light or burn.[81]

The reader will note that Dewey has now completely unified body and mind. In fact, though dualism does seem to be present in 1884, it was eliminated by 1886, ten years before the article on the reflex arc.

Dewey argues that the ordinary concept of the reflex arc is

> . . . a survival of the metaphysical dualism first formulated by Plato, according to which the sensation is an ambiguous dweller on the borderland of soul and body, the idea (or central process) is purely psychical, and the act (or movement) purely physical.[82]

We have thus before us the John Dewey psychology, with which the Chicago School of functionalism is launched, a John Dewey psychology which is acceptable to practically all scientific schools but especially to the Gestaltists. Human behavior is to be regarded wholistically not only as to the individual but also including all of human society. The 'soul' is not a distinguishable entity, but a word in quotation marks, equivalent to 'organism'. The Hegelian universal mind is completely gone. In its place is the totality of society, conceived as an organism, with neither distinguishable mind nor distinguishable body dualistically conceived.

Dewey's Changing View of the Personal Ego

In his article entitled "The Psychological Standpoint" published in *Mind* in 1886, the nature of the personal ego seems to be the chief point of interest, the "standpoint" from which psychology must proceed. After reviewing certain facts of physiological psychology, and of biology as related to psychology,[83] Dewey says

> . . . all these events, through no one knows how much time, having been precedent to your and my mind, and being conditions of their existence. Now is all this an illusion, as it must be, if its only existence is for a consciousness which is "but a transition from one state to another"? The usual answer to this argument is that it [the argument] is an *ignoratio elenchi*: that it [idealistic theory] has presupposed a consciousness for which those events existed; and that they have no meaning except in terms of consciousness. This answer I have no call to rebut. But it must be pointed out that this is to suppose the individual consciousness capable of transcending itself and assuming a universal standpoint—a standpoint whence it can see its own becoming as individual. It is this implication of the universal nature of the individual consciousness which has constituted the strength of English philosophy: it is its *lack of explication* which has constituted its weakness.

Dewey argues that *subjective* idealism has completely failed. He then proceeds

> . . . the psychological standpoint is necessarily a universal standpoint and consciousness [is] necessarily the only absolute . . . it is only because the individual consciousness is, in its ultimate reality, the universal consciousness that it affords any basis whatever for philosophy. . . . In short the individual self can take on the universal self as its standpoint, and thence know its own origin. In so doing, it knows that it has its own origin in the process which exists for the universal self, and

> that therefore the universal self never has become. . . . The individual consciousness is but the process of realization of the universal consciousness through itself. Looked at as process, as realizing, it is individual consciousness; looked at as produced or realized, as consciousness of process, that is, of itself, it is universal consciousness.

In the above remarks Dewey was wrestling with the problem introduced by Hume, which has been discussed at some length in Chapter I of this thesis. The reader will remember that Hume after having shown that he was not directly conscious of a "self", strongly suggested that some kind of self must be *inferred* from the continuity of consciousness. Hume then left the question of a self, inferred but not directly known, unsolved,—a true skeptic doubting his own doubts.

The reader will also remember that Tennant argues at great length on the basis of the fact of *Erlebnis*. It is a remarkable fact that I know myself to have had experiences yesterday, and I know that they were my experiences. The fact of *Erlebnis* leads to the inference that there is a personal ego which *erlebt*. This argument is slightly beyond that of Descartes. *Cogito ergo sum,* is static. *Es gibt Erlebnis, also etwas erlebt,* is dynamic.

Now Dewey, in 1886, seems to take for granted both the Cartesian argument and the dynamic social structure in which the individual consciousness finds itself. He seems however to have been troubled by the question of continuity in the individual consciousness. *Erlebnis,* the "perduring" character of the individual self, as Tennant expresses it, does not seem to have occurred to Dewey. Yet most obviously the self is capable of contemplating itself, or, as Dewey says, assuming "a standpoint whence it can see its own becoming."

It should be noted that the individual mind and the universal mind as here described are *not* a dualism. White[84] misconstrues the point in calling this "idealist dualism" and in saying that Dewey "was prepared to countenance Hegel's two minds." Hegel did not teach two minds in any dualistic sense, nor did Dewey countenance the idea that the two are dualistically distinguishable minds.

Of course, to a dualist, it is absurd to say that the individual mind is from one point of view truly the universal mind, and that the universal mind is just as truly, from another point of view, the individual mind. Whether such minds exist or not, the concepts, by definitions given, are incompatible with identity. Nevertheless Dewey does identify them, and it should be maintained that, in this point, as elsewhere since 1884, he is just as truly anti-dualistic as an anti-dualist can be. He is just as consistent in maintaining the identity of the individual and the universal mind(s) as anyone could be in maintaining such a perfectly inconsistent combination of words.

Allport's chapter on Dewey's psychology in the Schilpp volume places special emphasis upon the development of Dewey's notion of the self, or personality. He misses the above example of pure Hegelianism in accounting for "the unity of mental life" and, I think, he misconstrues the next stage in Dewey's treatment of the self. Allport says[85]

> The unity of mental life must be accounted for, and Dewey saw no way to obtain unity except through the activity of the self, defined, a bit circularly, as "the activity of synthesis upon sense."[86]
>
> Attention, for example, is "the activity of self in combining units." Apperception "organizes the world of knowledge by bringing the self to bear upon it." Eight years later Dewey would regard the unifying self as a useless redundancy, accounting in other terms for such unity as mind achieves; but in 1886 he was still far from this position.

Now as a matter of fact, in the 1890 article referred to by Allport, Dewey does not give his own opinion in the words quoted, or elsewhere in the article. He is entirely concerned with a critical analysis of Kantian, Hegelian, and related positions. First he analyzes three different views of the self which Professor Seth[87] claimed to have evolved from Kant's philosophy. Next Dewey gives an analysis of Kant's dualistic view of the ego. This is followed by an elaboration of what Dewey thought Kant would have said if his philosophy had been purged of the *Ding an sich*.

It is interesting to note that Dewey's hypothetical Kant without the noumenal world is almost Hegelian. The self is practically identical with its experiences; but yet the self is broader, and contains *a priori* more than is found in empirical data. This non-dualistic Kant is a rather familiar chimera in idealistic writings. To an unsympathetic dualist of course, it is a perfect picture of *ein Unding*. Dewey's picture of Kant is a tight-rope walker, the far end of whose rope is firmly secured upon nothing whatsoever. Kant was a dualist, and it is absurd for anyone to conjecture what he might have said if he had not been a dualist.

Dewey next proceeds to outline the position of Hegel.

> Thought as synthetic is action upon sense, and sense is through the synthetic action of thought. If we call them factors of experience it must be with the recognition of their intrinsic unity with each other. The self constitutes this unity; it is the activity which is the source of the correlative synthesis of thought and sense.[88]

It is this Hegelian view which Allport quotes in part as though it were Dewey's own, but (1) when Allport says that Dewey speaks "a bit circularly," it is a strange understatement. This is simply the regular present day John Dewey Hegelianism, insisting upon the identity of distinguishables, denying obvious polarity, and regarding all but functional activity as nonentity.

(2) Dewey does not in the article under discussion give the Hegelian view as his own, but rather he presses on to a T. H. Green version of Hegelianism. Green, building upon the Hegelian concept just described, had proposed

> . . . the idea of a completely realized self making an animal organism the vehicle of its own reproduction in time.[89]

Dewey concludes the article by stating that he does not commit himself even to the Hegelian position of T. H. Green. The article as a whole is purely critical, as its title suggests. In fact, it is one of the best examples I have found in Dewey's writings of careful analysis of other philosophers' opinions. It is comparable in interest and objectivity with his article, "The Vanishing Subject in the Psychology of William James."[90]

However, although Dewey is noncommittal in 1890, there is no reason to think that he has given up the identity of the individual mind with the universal mind as the solution to the problem of the continuity of individual consciousness. Rather, there is every indication that the position of T. H. Green, beyond Hegel, was the position toward which Dewey was drifting, that of the completely realized universal self manifesting itself in, and identical with, individual selves.

By 1894 Dewey had completely abandoned the idea of the individual ego and the universal mind. In his article in the *Philosophical Review*[91] he says

> When one man says to another, "You did that and I shall hold you responsible for it," he means by his "you", not a metaphysical ego, but a definite individual—John Smith. Every step away from the concrete individual, John Smith, with his special aptitudes, habits, desires, ideas, and ignorances, every step toward an ego in general, means a weakening of a connection between the man and the act, and a release of the man from the responsibility of the act.[92]

Just how the individual, John Smith, is any more definite or any more clearly responsible because he is *not* a causal entity, or metaphysical ego, is hardly clear. The phrase, "an ego in general" would be entirely obscure to a Cartesian if he were not familiar with the Hegelian notion of identifying the ego in particular with the ego in general. Dewey has at no time been a Cartesian and apparently has never given careful attention to the Cartesian notion of the *res cogitans*.

Dewey continues[93]

> Determinism means that the individual and his act are one. What does libertarianism mean? Will not some libertarian explain to me the causal agency of the ego in volition in terms of some concrete self, instead of in terms of a metaphysical ego?

There are several noteworthy features in the words just quoted. In the first place here and throughout the article under discussion, Dewey takes very strong ground for determinism and against libertarianism, specifically the libertarianism of William James. Dewey is commonly quoted as adhering to "an open universe".

Allport says[94] that Dewey "was a believer in an open universe and in man's capacity to modify his behaviour step by step". However, in the article on the ego as cause, Dewey's antilibertarianism is explicit and his commitment to determinism is extreme. It is hard to see how Dewey could consistently believe in man's capacity to "modify his behaviour step by step", since man *is* his behaviour, "the individual and his acts are one".

In a footnote quoted in part by both Allport and White, Dewey takes James to task, and, as White says, "out-Jameses James."

> It is strange that Professor James who recognizes so far as knowledge is concerned the entire uselessness of an ego outside and behind, who, indeed, has given that theory the hardest knocks it has yet received from the psychological side (Vol. I, pp. 360-370), should feel bound to set up its correlate when he comes to deal with will. If the stream of thought can run itself in one case, the stream of conduct may administer itself in the other. Why should he deny to the transcendentalist ego in knowing a power which he claims for attention in acting? Historically, I think the independent Ego in knowledge is a survival and transference from the action of an entity of Will in choice.[95]

Something radical took place in Dewey's psychology as related to philosophy between the years 1890 and 1894. In 1890 there is every reason to believe that Dewey was progressing beyond Hegel in the direction of objective idealism or personalism (although he nowhere refers to Borden P. Bowne) toward the absolute and all-comprehensive personality taught by T. H. Green. In 1894, all personalism, for the universe or for the individual, is completely gone, completely absorbed in behaviourism[96] or functionalism. What was the cause or the occasion of Dewey's radical change?

Quite obviously the change in Dewey's philosophy was, at least in large part, caused by the publication of William James' psychology in 1890. The chapters on the stream of consciousness and consciousness of self seemed to explain conscious life and activity without any perduring ego. The student is not left in doubt about the effect of these chapters upon Dewey, for he refers to them not only in the article in 1894 from which quotation is made above, but also in his article entitled "The Vanishing Subject in the Psychology of William James", published in *The Journal of Philosophy,* Vol. XXXVII, pp. 589-599, in the year 1940. In 1894 Dewey particularly referred to pp. 360-370 in the chapter, "The Consciousness of Self", in Vol. I of William James' *Psychology.* It is in these pages that James gives some of his most devastating thrusts at the transcendental ego of Kant and of T. H. Green. In this very same year, probably before reading James, Dewey was writing his sympathetic analysis of Green's superperson. Dewey evidently was abundantly convinced by James that the ego is unnecessary baggage and that the stream of thought is capable of functioning without a functioner.

Tennant has abundantly shown that William James utterly failed to account for the fact of *Erlebnis,* if by a thought we mean what is ordinarily meant. A thought being a thinker, is something more than a thought. It seems to me, however, that in these sections William James may have been misunderstood. I feel that there is always in the background of his mind a postulation of a non-material substantive entity which is the *res cogitans* even though he sometimes *calls it* the passing thought.

James concludes the section specifically referred to by Dewey with the words

> *There need never have been a quarrel between associationism and its rivals* [*substantialism and transcendentalism*] *if the former had admitted the indecomposable unity of every pulse of thought, and the latter been willing to allow that 'perishing' pulses of thought might recollect and know.*
>
> We may sum up by saying that personality implies the incessant presence of two elements, an objective person, known by a passing subjective Thought and recognized as continuing in time.[97]

In the 1940 article on "The Vanishing Subject" in William James' *Psychology*[98] Dewey first points out that in William James there are two divergent tendencies, one toward dualism and the other toward anti-dualism. He quotes a passage from James' *Psychology,* Vol. I, pp. 218-220 in which in most unequivocal terms James takes his stand for dualism.

James says

> *The psychologist's attitude toward cognition* will be so important in the sequel that we must not leave it until it is made perfectly clear. *It is a thorough-going dualism.* It supposes two elements, mind knowing and thing known, and treats them as irreducible. . . . They just stand face to face in a common world, and one simply knows, or is known unto, its counterpart. This singular relation is not to be expressed in any lower terms, or translated into any more intelligible name . . . even in mere sense-impression the duplication of the object by an inner construction must take place. . . . The dualism of Object and Subject and their pre-established harmony are what the psychologist as such must assume, whatever ulterior monistic philosophy he may, as an individual who has the right also to be a metaphysician, have in reserve.[99]

One would think that these words would settle it forever that William James is unequivocally a dualist. This, indeed, Dewey does not deny, but his contention is that there is an increasing tendency toward anti-dualism in James' two-volume *Psychology*. Dewey points out that James' chapter on the stream of consciousness had already appeared in *Mind* in 1884. He says that this chapter is "verbally . . . the most subjective part of the whole book," and he adds in a footnote, "I say 'verbally' because it is quite possible to translate 'stream of consciousness' into 'course of experience' and retain the substance of the chapter." Attention should be called at this point to the fact that Dewey's easy shift from "stream of consciousness" to "course of experience" somewhat corroborates the writer's suggestion that the Dewey of today is intellectually on approximately the same Hegelian ground which he occupied in 1886, in spite of the contradictory shifts in terminology.

Dewey quotes from William James' article in *The Journal of Philosophy,* September 1, 1904,[100] in support of his thesis that the ego relatively vanishes in James' *Psychology*. However, a careful reading of this article and of the entire book, *Radical Empiricism,* makes it perfectly clear that it is not the self which vanishes but the notion that consciousness was a kind of stuff. True, James regards the Thought as the knower, but he spells "Thought" with a capital T, and this is but a part of his spiritualistic metaphysics.

Furthermore, nothing could be more emphatic than James' reiteration of his dualistic position throughout the entire article referred to. Dewey's attempt to draw anti-dualism from this article of William James' is certainly a failure.

Dewey goes so far as to say

> A moderate amount of psycho-analysis might lead one to infer that the explicitness with which he [James] states that the assumption of dualism is necessary for the psychologist means that he entertained a doubt about the *ultimate* soundness of the dualistic position.

If this be sound reasoning one might as well say that the explicitness with which John Dewey repudiates dualism, taken with "a moderate amount of psycho-analysis" would lead to the conclusion that Dewey is in doubt about the *ultimate* soundness of his anti-dualistic position!

After all the straining to find an anti-dualistic tendency in James, Dewey is forced to conclude

> But, as I have already intimated, he [William James] never reworked his *Psychology,* so that all phases and aspects of psychological phenomena were observed and reported from this [dualistic] point of view. In consequence psychological theory is still the bulwark for all doctrines that assume independent and separate "minds" and "worlds" set over against each other . . . Philosophy will not be emancipated to perform its own task and function until psychology is purged . . . of the last remnant of the traditional dualism.

The situation seems to be then that William James in his *Psychology* appeared to explain the continuity of consciousness by identifying the passing thought as the *res cogitans,* though James himself clearly retained his epistemological and ontological dualism and reintroduced the *res cogitans* as a *res volens* when he came to the discussion of will. Dewey, who had already begun to place more emphasis upon social psychology than upon the individual "soul", leaped far beyond James to the conclusion that *res cogitans* and *res volens* are nothing but *cogitatio* and *conatio* without any *res.*

Attempts to Account for Erlebnis

Allport[101] says that Dewey

> Dissatisfied with the reflex-arc . . . felt his way toward a unit that might better express the circuit character of all behaviour. Twenty-six years after his attack upon the reflex-arc, he finally proposed *habit* as the unit most suitable for psychology to employ. . . . When between 1917 and 1922 he decided to dispense with instincts, the need for a dynamic unit, one that should be "assertive, insistent, self-penetrating," became all the more urgent. [Allport's footnote:] The dates represent the publication of "The Need for a Social Psychology," *Psychological Review,* Vol. XXIV, pp. 266-277, and *Human Nature and Conduct,* respectively.

It may not be fair to assume that what Allport means by "the circuit character of all behaviour," and "a dynamic unit . . . assertive, insistent, self-penetrating," is identical with what Tennant takes the *res cogitans* to be. Nevertheless, this is probably true. If Dewey is to be criticized at any point, it would be reasonable to suppose that vagueness might be found at the point at which criticism might justly be directed. Again this is true in this instance. Dewey may have been only vaguely conscious of the facts designated by *Erlebnis,* and may never have fully focused his attention upon these data.

Dewey does not use the word *Erlebnis,* nor does he, so far as I can discover, refer directly to the data which Tennant assembles under that term. However, as I have shown above, he was aware of the problem of the perduring consciousness of the individual, and in 1886 through 1890 explained the problem by reference to the universal mind.

When, later, under the influence of William James, and going beyond James, he completely abandoned the concept of the self as a substantive entity, he, at the same time, lost track of the distinction between participles and nouns, the distinction between function*ing* and function*er*. The groping for "the unit most suitable for psychology to employ" to which Allport refers, may have been a true groping, a groping without consciousness of the definitive problem which demanded a solution.

Allport analyzes at considerable length, and with much detail, Dewey's substitution of habit for the personal ego. His statement that Dewey "decided to dispense with instincts" as a distinct unit in the behavioral pattern might be misunderstood. In *Human Nature and Conduct,* Dewey still retains the conception of instincts. It is the separate functioning of instincts as though they were mechanical parts, which Dewey rejects. This fact is brought out particularly in Part II, "The Place of Impulse in Conduct," Section VI, which is headed "No Separate Instincts." Habit is given special treatment in Part I entitled "The Place of Habit in Conduct," but the thought of habit runs throughout the entire book.[102]

Allport does not feel that Dewey has succeeded in supplying the place of personality by the concept of habit.

> . . . the doctrine of habits . . . has a decidedly deductive cast. It is not advanced with experimental evidence, nor is it compared in any detail to similar units, especially *attitudes,* proposed by other psychologists.[103]

Allport adds in a footnote

> Here we have an example of the isolationism that afflicts Dewey's Psychology. Granted that relatively little work had been done in 1922 upon the perplexing problem of units of personality, still there were many contacts he could have made with profit.[104]

Allport continues

> Because he ascribes so many contradictory attributes (variability and stability, lag and progress, compulsiveness and choice) to the habit mechanism, psychologists have failed to adopt Dewey's account of it in detail. But the conception has had its influence none the less.[105]

Such constant evolving and interweaving, stressing now

> habit and now impulse, is fatally opposed to all attempts at psychological classification.[106]
>
> But when Dewey, or anyone else, proposes to take away the anchorage of fixed categories and fixed mechanisms, the possibility of conceptual manipulation disappears and the science of human nature seems built not upon solid rock, but upon shifting sand.[107]
>
> Dewey's stress on evolving goals and evolving mechanisms takes his attention away from the stability of organization in the individual personality. It is all to the good to conclude that motives are not uniform within the species, that they grow with experience, and that they exist independently of their origins, involving peculiar blends of habit, impulse, and thought; but it is not helpful to be left without any way of conceiving the patterning of motives within personality over a range of years. He seems not to have asked himself how long-lived an interest may be, or how enduring a habit . . . He deals, in short, more adequately with the progressive shifts in personality than with its stability of structure.[108]

It is noteworthy that throughout the *Quest for Certainty,* habit appears as a drag upon the progress of inquiry. He uses such expressions as the *"vis inertiae* of habit" (p. 293), "the bondage of habit" (p. 294), and "habits of mind which stand in the way" (p. 297) and the inertia of intellectual habit is discussed on pages 82, 131, 168, 199, and 227.

In his *Logic,*[109] Dewey repudiates habit and appeals to biological and social or cultural continuity as a basis for the phenomena which Tennant would sum up under the name *Erlebnis.* Dewey says

> Hume, who carried the atomization of experiences to its extreme, was obliged on that account in order to obtain even a semblance of enduring objects, to introduce a counterbalancing principle, habit. Without this bond of connection neither memory nor expectation (to say nothing of inference and reasoning) could exist. Each new impression would be an isolated world of its own, without identifiable qualities. He regarded habit as a "mysterious tie"—but a tie he had to

> have in order to account for even the illusions of stable objects and of a self that endured through the succession of experiences.[109]

This is a rather penetrating analysis of Hume's problem, but what will Dewey substitute for "habit"? He continues

> The development of biological knowledge has now done away with the "mysterious" quality of the tie. Some sort of sequential connection is seen to be as inherent a quality of experience as are distinctive pulses of experience that are bound together. Cultural conditions tend to multiply ties and to introduce new modes of tying experiences together.[110]

But surely Hume knew any relevant facts of biology to which Dewey could possibly have reference as doing away with the problem. Of course there has been "development of biological knowledge" since Hume's time, but Dewey cannot point to any newly acquired data which in any way modify the "mysterious" nature of the fact that I identify my experiences of yesterday as my own experiences.

What does Dewey refer to under the term "cultural conditions", what that was not also available to Hume? The latter certainly knew that "cultural conditions tend to multiply ties and to introduce new modes of tying experiences together"; but this fact was Hume's challenge. Hume was a *serious* mind deeply wrestling with a profound problem, an earnest skeptic, doubting his own doubts, and making no pretenses. Dewey's use of the phrases "the development of biological knowledge", and "cultural conditions", when compared with the desperate earnestness of Hume's discussions of the problem, appears to be a flourish of words calculated to silence the inarticulate immaturity of the classroom.

Allport's analysis of Dewey's psychology continues

> His nearest approach to an orderly analysis is the widely quoted five-fold steps in reflective thinking; (i) a felt difficulty; (ii) its location and definition; (iii) suggestion of possible solution; (iv) development by reasoning of the bearings of the suggestion; (v) further observation and experiment leading to its acceptance or rejection, that is, the conclusion of belief or disbelief.[111]

It is difficult to find the passage to which Allport has reference in the 1933 edition of the same work. Whitney[112] refers to "The analysis furnished by John Dewey of Teachers College, Columbia University . . ." and he summarizes the five steps substantially as Allport does, but gives the reference to the 1933 edition of *How We Think,* page 12. However, an examination of the page reference reveals the fact that the five steps are by no means given in the section to which Whitney refers. Dewey there summarizes the entire process of reflective thinking under two headings, the first of which, indeed, is "a state of doubt . . ."

In the 1933 edition of the book referred to, Dewey gives five steps at a later point in his argument, under the subheading "Five Phases, or Aspects, of Reflective Thought."

> . . . states of thinking, are (1) *suggestions,* in which the mind leaps forward to a possible solution; (2) an intellectualization of the difficulty or perplexity that has been *felt* (directly experienced) into a *problem* to be solved, a question for which the answer must be sought; (3) the use of one suggestion after another as a leading idea, or *hypothesis,* to initiate and guide observation and other operations in collection of factual material; (4) the mental elaboration of the idea or supposition as an idea or supposition (*reasoning,* in the sense in which reasoning is a part, not the whole, of inference); and (5) testing the hypothesis by overt or imaginative action.[113]

Professor Horne[114] mentions Dewey's "five steps of reflective thinking" and refers ahead to Chapter XII in his own book. In that chapter the five steps are summarized as (1) activity; (2) problem; (3) data; (4) hypothesis; (5) testing; but the student is not given a page reference for Dewey's own statement of the steps. It is understood, of course, that Professor Horne is discussing the corresponding Chapter XII in Dewey's *Democracy and Education.* In the body of that chapter Dewey gives only four stages or steps in thinking, but he subdivides the first, giving five in all, in his brief summary at the end of the chapter. Dewey says

> The essentials of method are, therefore, identical with the essentials of reflection. They are first, that the pupil have a genuine situation of experience—that there be a continuous activity in which he is interested for its own sake; secondly,

> that a genuine problem develop within this situation as a stimulus to thought; third, that he possess the information and make the observations needed to deal with it; fourth, that suggested solutions occur to him which he shall be responsible for developing in an orderly way; fifth, that he have opportunity and occasion to test his ideas by application, to make their meaning clear and to discover for himself their validity.[115]

It would thus appear that the five steps in reflective thinking which Dewey gave in 1910, were not for him a fundamental analysis of the processes of thought, but a mere temporary outline which he himself constantly revised, reorganized and supplemented. In fact, after discussing the "five phases" which I have quoted above from page 107 of the 1933 edition of *How We Think,* Dewey has a further subhead, "The Sequence of the Five Phases Is Not Fixed,"[116] and he proceeds for several pages to elaborate this heading. It would appear, therefore, that those who take the five steps of thinking as a more or less tangible and permanent element in Dewey's educational psychology, have misunderstood Dewey's material. I doubt if two passages could be found in which Dewey sets forth substantially the same five-fold outline.

Coming down to Dewey's latest period, Allport points out that in his *Logic,* published in 1938, little is added to the psychological analysis of thinking. Allport says

> We do, however, find in the *Logic* two developments that have important bearings on psychological theory and practice. One is the author's complete repudiation of the dualistic position. . . . The subject or self vanishes, and in its place Dewey establishes the "biological-cultural human being." . . . The second concept in the *Logic* of special significance for psychology is that of the "situation." Suggestive as it is of the "field" of Gestalt theorists, "situation" has considerably broader reference. It is more than a mere perceptual field. . . . With its operational and Gestalt flavor, and with its acceptance of situational and cultural determinism, the *Logic* brings Dewey's general philosophy of human behavior to

> mature expression, but adds little to the narrower psychology of thought.[117]

Dewey's educational and social psychology is of great interest to all students of those fields. But discussion of the areas of these materials which have no parallels in Tennant's psychology will have to be omitted from this thesis.[118] Dewey's chapter, "Conduct and Experience" in Carl Murchison's *Psychologies of* 1930[119] is partly within these fields. Dewey's incisive arguments against the extreme behaviorists in this chapter have largely to do with matters set forth more fully in his books, *The Quest for Certainty* and *Logic,* which will be discussed below in connection with his epistemology.

Allport concludes

> What is the nature of John Dewey's influence on modern psychology? That an answer is not to be sought in conventional directions is clear from our present survey. He is not a laboratory psychologist; there is no record of his conducting a controlled experiment, nor devising nor administering a psychological test. In his biliography [sic] we had only one minor and now forgotten observational study (on infant language). . . . He does virtually none of these things that present-day psychologists are supposed to do. . . . Is he then a systematist? Many psychologists would say no, for the system Dewey offers is of such nature that it lacks fixed points of reference. It is elusive and difficult to grasp. . . . Evolving circuits may, indeed, be, as Dewey insists, the course of mental life, but spiraling processes make orderly analysis in terms of separate variables impossible. . . . But Dewey is unmoved by such criticism. . . .
>
> It is another mark of Dewey's influence that he has made psychological propositions indispensable to philosophy. . . . Logic is the science of inquiry, but the act of inquiry can proceed only according to psychological canons. Art is experience, but experience must be revealed by a study of typical attitudes and habits which psychology identifies. . . . The whole pragmatic philosophy of proximate goals, next steps, "ends that are literally endless" must tie in at every

> point with a psychology that treats the successive stages of organic conduct. . . . deep and far-reaching significance lies in Dewey's perception of the inherent relation between psychology and democracy.[120]

Allport ends his discussion of Dewey's psychology with the words

> In 1939 [the date of the Schilpp volume] Dewey's perception is seen for its true brilliance. . . . The times have caught up with Dewey. We realize at last what he has long contended, that without democracy psychology cannot succeed, and without psychology democracy will surely fail.[121]

Allport's conclusion is of central importance for Dewey's work in the field of psychology as a whole. However, this study of Dewey's psychology must be concluded by pointing out the significance of another aspect of his work, one which forms an important basis of comparison with the psychology of F. R. Tennant. It seemed suitable to begin the study of Dewey's psychology with his very latest expression on the subject, his brief reply to Allport in the Schilpp volume cited above. It seems appropriate to conclude with a further quotation from the same source. These are Dewey's own words about his own psychology, words written in 1939, that is, in the most recent period of his long and active career. Dewey says

> Returning now to specific criticisms of Dr. Allport, I am obliged to admit what he says about the absence of an adequate theory of personality. In a desire to cut loose from the influence of older "spiritualistic" theories about the nature of the unity and stability of the personal self (regarded as a peculiar kind of substantial stuff), I failed to show how natural conditions provide support for integrated and potentially equilibrated personality-patterns. . . .
>
> . . . Dr. Allport criticizes my writings in the field where the psychology of persons in their social (inter-personal) relations is peculiarly weighty, [I think Dewey intended to say, "Dr. Allport's criticism of . . . is peculiarly weighty"] on the ground that I have failed to show the compatibility of a community of integrated persons with the variety of seg-

> mental types of publics which are due to specialization of interests and divisions of labor. I certainly admit that at the present time the problem is unsolved, and would go so far as to say that as a practical problem it is *the* problem of our day and generation.[122]

In the discussion of the psychology of F. R. Tennant in Chapter I, his great emphasis upon the subject of the individual personality, or the ego, became very apparent. In that chapter it was indicated that emphasis upon personality in psychology is not peculiar to Tennant. The elaborate negative views of Boyd Henry Bode, a disciple of John Dewey, as set forth in his book *How We Learn*[123] were reviewed. The purpose in so doing was two-fold, (1) to form a basis for comparison with Tennant in the immediate context, and (2) to prepare the way for the presentation of Dewey's views on the same subject.

With this background in mind, and with the summary of Dewey's teaching on the psychology of personality as briefly presented, certain features, important for this thesis, will readily be seen:

(1) Dewey never did believe in the personal ego as a substantive entity in the sense in which Tennant believes and Bode vigorously disbelieves in such an entity. Even in Dewey's article in the *Bibliotheca Sacra* (April 1886) on the subject "Soul and Body" in which Hegelian elements were suppressed, Dewey advanced no such doctrine of personality as is held by Tennant, nor such as is held by the Judeo-Christian tradition. What Dewey gave up when he substituted social psychology for his former view of the "soul" was Hegelian pantheism and idealism.

(2) Dewey's rejection of the notion of a personality as a substantive entity, a *res cogitans,* is intimately connected with his ontology, and becomes a part of his functionalism. The *res cogitans* becomes mere *cogitatio* in the same way in which the *res extensa* becomes mere *extensio.*

(3) When Dewey goes "so far to say" that the problem of personality is "the problem of our day and generation", he does not in any sense consciously refer to the question of the existence or non-existence of a substantive entity, a *res cogitans.* He merely

intends to indicate a non-substantive function*ing,* which, for a dualist, is the functioning *of* a person. He is only conscious that he has failed to provide support for non-entity integrated and potentially equilibrated personality-patterns.

In replying to Bertrand Russell in an obviously bitter mood, Dewey says

> . . . Mr. Russell writes: "We are told very little about the nature of things before they are inquired into."[124] If I have said or tried to say the tiniest bit about the "nature of things" prior to inquiry into them, I have not only done something completely contradictory to my own position but something that seems to me inherently absurd.

In the words quoted from Russell, "the nature of things", refers primarily to what a dualist would call material entities, but the words would as well refer in Dewey's thinking to the nature of non-material personal entities. He has not the slightest intention of saying, and he would consider it "inherently absurd" to say "the tiniest bit" about personality prior to, or as other than, a participial function*ing* within the process of inquiry itself.[125]

1—Paul Arthur Schilpp, Ed., *The Philosophy of John Dewey,* Northwestern University Press, 1939, pp. 554 ff.

2—Loc. cit., p. 554.

3—Loc. cit., pp. 555 f.

4—Ibid., p. 555.

5—Ibid., p. 555.

6—Ibid., p. 555.

7—Morton G. White, *The Origin of Dewey's Instrumentalism,* Columbia University Press, 1943, xvi plus 161 pages.

8—Op. cit., pp. 8 f.

9—Ibid., p. 9.

10—Ibid., Chapter 11, pp. 12-33.

11—Morris identifies sensationalism with empiricism, and White uses the term empiricism in the same sense as evidenced by his statement that Dewey ". . . in attacking empiricist psychology . . . used the results of the new, experimental psychology." (Ibid., p. XIV) The identification of empiricism with sensationalism is a usage of the term which must be recognized, but it has been shown in the introduction to this thesis that both Dewey and Tennant at the present time use the term empiricism to describe their own philosophies, whereas both reject sensationalism.

12—Ibid., p. 15.

13—Ibid., p. 16.

14—Op. cit. p. 17.
15—Chapter II above on Tennant's psychology.
16—Op. cit. p. 18.
17—Ibid., pp. 18 f.
18—Ibid., p. 34.
19—Ibid., p. 31.
20—Ibid., pp. 40 f.
21—Ibid., pp. 43 ff.
22—Ibid., p. 46.
23—Op. cit. pp. 17 f.
24—Ibid., pp. 17, 18.
25—*Bibliotheca Sacra*, Vol. XLIII, pp. 239-263.
26—Paul Arthur Schilpp, Ed., *The Philosophy of John Dewey*, pp. 265 ff.
27—Op. cit., p. 240. Note that Dewey here uses the terms "irrational" and "non-rational" as interchangeable.
28—Ibid., p. 242.
29—Ibid., pp. 242 f.
30—Ibid., p. 245.
31—Ibid., p. 247.
32—Ibid., pp. 248 f.
33—Ibid., p. 250.
34—See p. 282 f.
35—See his chapter in *Naturalism and the Human Spirit*, p. 13, regulative ends not absolute.
36—Ibid., pp. 251 f.
37—Ibid., pp. 252 f. (*Bibliotheca Sacra*, Vol. XLIII)
38—Ibid., p. 254.
39—The contradiction will of course be denied by those who deny the substantive entity of material things. Professor George E. Axtelle has commented on the above sentence as it appeared in the rough draft of this thesis as follows: "Is it a case of interaction between *body* and *mind* or is it a case of much more complex interaction in a social process in which various phenomena including mind emerge as outcomes of the interactive relations? Here we deal with the phenomenon of creativity and emergence. The difficulty lies in the confusion of linear causation with emergence or creation. . . . Hence I would deny the 'patent self-contradiction'."

It should be noted that Dewey in the material referred to does not bring up the subject of emergence or creation, and that in place of causation or what Professor Axtelle calls "linear causation" Dewey's suggestion is "occasion."

Professor Axtelle's denial of the contradiction pointed out and his suggesting of "much more complex interaction" from which "various phenomena including mind emerge as outcomes" must be noted as over against the position taken in this thesis. By "contradiction" I mean to point out that Dewey, having denied causality, ascribes all the essential meaning of the causal to what he calls the occasional.

40—Ibid., p. 254 f.

41—Ibid., p. 256 f.

42—Ibid., p. 259.

43—Ibid., p. 260.

44—Ibid., pp. 260 f. The quotation Dewey takes from "President James Marsh, Remains p. 257".

45—Ibid., p. 262 f.

46—See White, op. cit., p. 47.

47—Ibid., p. 263.

48—As an example of discussion on this point, well known to New Testament critical scholars, I submit the following book review from *The Bible Today*:

> *The Recovery of the Historical Paul*, by Robert M. Hawkins D.D., Ph.D., (Edin.), Professor of New Testament Language and Literature, Vanderbilt University. Vanderbilt University Press, 292 pages, $3.

The announcement of a book of this title by an author with such connections would lead one to expect a scholarly study of the liberal attitude toward Paul. We Bible believing theology professors seriously endeavor to keep abreast of liberal thought for two reasons: (1) We must be able to give helpful advice to students undergoing liberal instruction, and (2) we are almost always driven deeper into the Word of God by the investigation of an argument from the non-Biblical point of view.

Unfortunately, the book before us is a disappointment. Its method is subjective. Its superficiality is evidenced in remarks concerning "those who have previously labored in the field of Pauline study." (page 19) The author says, "Of specific indebtedness, there is very little; no use is consciously made of previous works." He further states in the same context, "Greek has been eliminated as being unnecessary for those who use it, and of little value for those who do not."

In the opening pages the author draws the analogy between the search for the historical Jesus and the search for the historical Paul. He shows familiarity with the most radical methods and conclusions in the former field. The Jesus of Matthew, Mark, and Luke, is said to be a very different picture from the Jesus of John. The Jesus of Mark is very different from the Jesus of Luke, the Jesus of the alleged "Q" sources other than Mark, different from the Jesus of Mark, and the Jesus of the fragmentary method, *Form Geschichtliche Methode*, so different from all these that "the recovery of the historical Jesus is at best problematical." (page 5) As a matter of fact, it is evident to objective scholarship that all the records, all the alleged sources, present one consistent picture of the Lord Jesus Christ. The only Jesus known to historical records of any kind is the God-Man. (The reader should consult *The Christ of the Logia*, by the late Professor A. T. Robertson.) The only way the Jesus of whom Mark writes can be made to differ from the Jesus of the fourth Gospel is by a radical subjective process. If those elements in Mark which present Christ as God in the flesh are not only eliminated but contradicted, and if those elements in which Mark presents Jesus in his ordinary human relationships are alleged to be not only true but the total truth, eliminating the deity and substituting a person entirely different from the one presented in the Gospel of Mark as we have it,—only so can any true discrepancy be manufactured.

Commencing direct work on the life of Paul, the author tells us that it has been assumed until recently that the Acts of the Apostles was a standard and authoritative record of Paul's activities. He proceeds to brush aside the book of Acts by a mixture of subjective and objective arguments. The objective part of the argument may be illustrated by two examples.

The author calls attention to the three accounts of Paul's conversion recorded in the book of Acts. (page 8) He then states, "Either 'Luke' did not know the facts in regard to this turning point in the life of Paul, or he cannot be relied upon to give a clear and consistent account of things he did not know." On the contrary, some of the greatest scholars have noted that the accounts of the conversion of Paul in the book of Acts have all the marks of genuineness and accuracy. If the story is really true and is told on three occasions for different audiences with slightly different purpose and emphasis, then we would expect exactly the phenomena which we have. The three accounts can be fitted together as well as any three truthful accounts of an actual incident of this kind can ever be fitted together. It is only myths, fairy stories, children's tales, which can be told again and again without provoking any careful thought as to the order and relationship of detail.

On the same page the author gives us the following amazing sentences:

> It must be carefully noted that there is in the third Gospel not only this drastic suppression of the tradition of the Galilean appearance of the risen Jesus, but also the definite statement that he ascended into heaven, "that very day," i.e., the day of the resurrection. Scholars must decide whether the occurrence of a period of forty days between the resurrection and the ascension in the opening chapters of Acts is evidence that the two books were not written by the same author, or whether our most trusted historian is capable of representing the ascension in the Gospel as occurring immediately, and in the Acts as only after forty days.

In the above paragraph the words which Professor Hawkins puts in quotation marks, "that very day," are not identified. The ordinary reader, or the experienced reader if not suspicious, would inevitably conclude that the author is quoting those three words from Luke's Gospel. Real scholars, or even honest men, in the use of modern punctuation marks, and with the technique of the modern classroom, are in the habit of using quotation marks to convey true references of thought or of words. It is a fair guess that ninety-nine per cent of the students in Vanderbilt University who listen to Professor Hawkins and who read his book will conclude from this paragraph that he has given an actual quotation from the Gospel contradicting the opening narrative in the book of Acts.

As a matter of fact, the Gospel according to Luke does not state that Christ ascended to heaven on the day of the resurrection, but on the contrary we are told that by the time Christ and the two disciples reached the village of Emmaus, it was sunset on resurrection day. They prepared a meal and began to eat it. Subsequently (apparently during the early hours of the night) they returned to Jerusalem. Jesus joined them sometime during that same night, or the next morning. Thus, by no possible interpretation can Luke be made to say that Jesus ascended into heaven on the day of the resurrection. Luke then gives a paragraph summary of instructions which Jesus gave to his disciples after the resurrection. Any careful reader of the paragraph must see that these instructions would have occupied a considerable time. We should have to postulate a teaching period of approximately forty days if we did not have the first chapter of the Acts. After the paragraph summarizing Jesus' post-resurrection teaching, the concluding paragraph in Luke's Gospel describes the ascension.

For a professor of New Testament Language and Literature in a reputable American university to make such a statement as that quoted above, may not be conscious dishonesty, but at least it is nothing better than culpable carelessness.

The denial of the historical trustworthiness of the Acts of the Apostles is not a recent development, but belongs to a past generation. Sir William M. Ramsay, in the opening chapter of *St. Paul, the Traveler and Roman Citizen*, recounts that in his early days as a student and teacher he entertained the prevailing views of that day on the general untrustworthiness of the book of Acts. However, through his scholarly studies in the archaeology of the New Testament, and through his classical study of the languages of the Roman Empire in the first two centuries, he became convinced that he must place "the author of Acts among the historians of the first rank." (page 4) Ramsay wrote this work a half century ago, 1895! Professor Hawkins has given as a recent scholarly opinion, a view which prevailed in Ramsay's youth seventy-five years ago, a view which has been abundantly answered by careful, objective, scholarly research.

I wrote the above portion of this review in May, 1944. Filled with indignation at the unscholarly method by which Professor Hawkins seeks to cause the genuine historical epistles of Paul to evaporate into thin air, I had prepared notes comparing his methods and results with those of other critical scholars. I had, for example, several comparisons with such a work as Professor Goodspeed's *New Chapters in New Testament Study*. (Macmillan 1937) The latter work is indeed rather extreme. The conclusions are not all acceptable to us. However, Professor Goodspeed is always "a gentleman and a scholar." His facts are verifiable. His opinions are lucid and honest. The fundamentalist reader may disagree but never feels that he has been tricked.

Professor Goodspeed, for example, after showing that the author of the second epistle of Peter was acquainted with the collected letters of Paul, the epistle of Jude, I Peter, the prophecy of Christ recorded in John 21:18, probably the Gospel of Mark, and possibly also the epistle of Barnabas, frankly expresses the opinion, "That the Apostle Peter could have possessed such a Christian library is out of the question." We reply, of course, that from what we know of the collecting and cherishing of early Christian writings, from the way in which the epistles of Ignatius were regarded by his contemporaries, it seems entirely credible to us that the Apostle Peter could have possessed just such a library. In fact, Goodspeed himself gives us the material with which to defend ourselves.

I had planned an extended section of this book review, contrasting Hawkins with Goodspeed and others with whom we disagree on important points. However, this material existed only in the form of notes and had to be laid aside for the summer during the press of other imperative duties.

In the meantime, before resuming my book review work this fall, I was happy to discover in the September issue of the *Journal of Biblical Literature* an excellent review of Hawkins' work by Paul Schubert. The *Journal of Biblical Literature* represents scholarship; at the same time, no one needs to be told that it is not a fundamentalist magazine! This JBL review reveals to me that I had taken Hawkins' work too seriously. It will not be necessary for me to write up my notes. I can quite adequately complete the review by quoting a few sentences from JBL:

> In Hawkins' actual procedure these criteria [the criteria of historical and literary criticism] play no leading role; they are only stage props. In fact he is aware of this weakness, and cheerfully dispenses with the "technical processes" of literary criticism including the consideration of the Greek text. One may well ask what value there would be in a study of Shakespeare's style based on Schlegel's German translation.
>
> The only criterion consistently, if subjectively, applied by Hawkins is stated as follows: "The primary situation from which [Paul] is arguing must always be kept in mind; any blurring of these circumstances must be noted and estimated; we must take account of the basic connotations of the terms employed, and of any vacillation or contradiction in the meaning assigned to them in the same context. . . . In other words we must rely upon these features of clearness, appositeness, continuity, and consistency, the absence of which must result in nonsense."
>
> Such a method is unobjectionable only if it has first been established on valid grounds that Paul never deviates from or goes beyond

"the primary situation from which he is arguing"; that there is no vacillation in the connotation of the major terms he uses, and that otherwise his thinking is a perfect, lifeless model of clearness, appositeness, continuity and consistency. Since this characterization of the historical Paul is for Hawkins an *a priori* assumption, his procedure is question-begging. The charge of naivete boomerangs with great force on the author.

It is to be hoped that Professor Hawkins will undertake to restudy the real problem of the historical Paul on some such basis as here indicated. Otherwise his effort (including two articles in the JBL, vols. 59 and 60) will have been in vain because now, far from clarifying the figure of Paul, he only adds more confusion.

49—For convenient reference, the *Negativität* is clearly described and analyzed by Josiah Royce in the article "Hegel's Terminology" in Baldwin's *Dictionary,* Op. Cit., Vol. I, pp. 454 to 465. See especially p. 458, second column. Of course Dewey today is not a Hegelian. Verbally, and conceptually as well, he is at the opposite extreme in many respects, and yet, *Les extrêmes se touchent.* It would seem that Hegel's anti-dualistic *Negativität* is the backbone of Dewey's philosophy today. This concept is essential for a proper understanding of his *magnum opus, Logic, the Theory of Inquiry.*

50—Loc. cit.

51—*Andover Review,* Vol. VII, pp. 573-591.

52—Op. cit., pp. 96, 98.

53—Op. cit., p. 573.

54—Ibid, p. 576.

55—Ibid., p. 578.

56—See page 274.

57—White (Op. cit., pp. 96 ff.) shows that it was chiefly in his ethical writings in the 1880's that Dewey made the transition from the universal mind concept to the social organism concept. See especially the excerpts from Dewey's letter to William James, 1891, in which he defines idealism (White, Op. cit., p. 101) as ". . . the conception of some organism comprehending both man's thought and the external world. . . . the unity of intelligence and the external world *in idea* or subjectively, . . . [such that] if [anything is] true it must finally secure the condition of its objective expression."

This remarkable definition is *not* "rationalism" as the term is defined in this thesis. The word "true" is to be construed in the Hegelian, not the Aristotelian sense.

58—Ibid., p. 579.

59—Ibid., p. 583.

60—Ibid., p. 591.

61—Dewey's work on Leibnitz, page 39, quoted by White, op. cit., p. 62.

62—Dewey on Leibnitz, p. 272, quoted by White, op. cit., p. 63.

63—Carl Murchison, Ed., *Psychologies of 1930,* Clark University Press, Chapter entitled "Psychology for Eclectics" by Edwin G. Boring, Harvard University, p. 123, under the sub-title "Atomism vs. Organization."

64—Edna Heidbreder, *Seven Psychologies*, Appleton-Century, 1933, p. 209.

65—*Andover Review*, Vol. II, Sept. 1884, p. 278-289.

66—Op. cit., p. 289.

67—Ibid., p. 278.

68—*University of Chicago Contributions to Philosophy*, 1897, Vol. I., No. 3, p. 19.

69—Ibid., p. 281.

70—Ibid., p. 282.

71—Ibid., p. 281.

72—Ibid., p. 284.

73—Ibid., p. 287.

74—Ibid., p. 288.

75—However, when Dewey says "no faith which is not rational . . ." he evidently defines reason, not in the sense of Aristotelian logic, but in the sense of the Hegelian dialectic.

76—Ibid., p. 289.

77—Op. cit. p. 39.

78—Ibid., p. 42.

79—William James, *Principles of Psychology*, Vol. I., p. 25.

80—Op. cit., p. 45.

81—Ibid., p. 46.

82—Loc. cit.

83—Op. cit., pp. 18, 19.

84—Op. cit., p. 56.

85—Op. cit., p. 267.

86—Allport here gives the following footnote: "On Some Current Conceptions of the Term 'Self'," *Mind*, 1890, Vol. XV, p. 58-74.

87—Full name, Andrew Seth Pringle-Pattison.

88—*Mind*, Jan. 1890, XV, p. 58-74.

89—Ibid., p. 73.

90—*Journal of Philosophy*, Vol. 37, (1940) pp. 589-599.

91—*Philosophical Review*, 1894, Vol. III, pp. 337-341, "The Ego as Cause".

92—The quotation thus far is given by White, op. cit., p. 106.

93—*Philosophical Review*, 1894, loc. cit.

94—Op. cit., p. 270.

95—Op. cit., pp. 340 f footnote.

96—Not of course Watsonian behaviourism, for Dewey never was a materialist and never denied or ignored consciousness.

97—William James' *Psychology*, Vol. I, p. 371.

98—This article is reprinted in John Dewey's *Problems of Men*, Philosophical Library, 1946, pp. 396-409.

99—Dewey, *Problems of Men*, pp. 396 f. Quoted from James' *Principles of Psychology*, Vol. I, pp. 218-220, *passim*. Italics in original text.

100—Reprinted as Chapter I of James' "*Radical Empiricism*".

101—Op. cit., p. 270.

102—John Dewey, *Human Nature and Conduct, An Introduction to Social Psychology,* The Modern Library, Second Edition, 1930.

103—Op. cit., p. 271 f.

104—Loc. cit.

105—Ibid., p. 272.

106—Ibid., p. 275.

107—Ibid., p. 275.

108—Ibid., p. 276.

109—Dewey's *Logic,* p. 245.

110—Ibid., p. 245 f.

111—Ibid., p. 278, summarized by Allport from *How We Think* (1910) p. 72.

112—Frederick Lamson Whitney, *The Elements of Research,* Prentice-Hall, Second edition 1942, p. 3.

113—*How We Think,* 1933 Edition, p. 107.

114—Herman Harrell Horne, *The Democratic Philosophy of Education,* Macmillan 1932, p. 88.

115—John Dewey, *Democracy and Education,* p. 192.

116—*How We Think,* p. 115.

117—Op. cit., pp. 278ff.

118—Prof. G. E. Axtelle has suggested that Dewey's current psychology is more fully set forth in his *Human Nature and Conduct.* There are, indeed, psychological aspects of social subjects treated therein, but Dewey expressly says, "The book does not purport to be a treatment of social psychology." (Preface p. iv) The book is more of an Ethics than a Psychology. See Dewey's Foreword to the 1929 edition published by Random House. Dewey would not have referred to his psychology as "my scattered, and, of late years, unprofessional writings," as he did in 1939 (Schilpp volume, p. 554) if he had considered his *Human Nature and Conduct* in any sense a Psychology. However, the relevant portions of *Human Nature and Conduct* have not been neglected in this thesis.

119—Op. cit., pp. 409-422.

120—Ibid., pp. 287 ff.

121—Ibid., p. 290.

122—*The Philosophy of John Dewey,* P. A. Schilpp, Editor, 1939, Dewey's "Rejoinder", pp. 555 f.

123—Heath & Company, 1940.

124—The Schilpp Volume, p. 546.

125—In fact he does indicate precisely this in a passage in the *Quest for Certainty,* discussed below in connection with his epistemology. He says, "There is no separate 'mind' gifted in and of itself with a faculty of thought; such a conception of thought ends in postulating the mystery of a power outside of nature and yet able to intervene within it." *Quest for Certainty,* p. 216.

CHAPTER V

DEWEY'S EPISTEMOLOGY

The borderline between psychology and epistemology was difficult to draw in the study of F. R. Tennant's empiricism. It is equally difficult in the case of Dewey. It might well be held that from the beginning his interest in psychology was in large part philosophical.

If it is difficult to distinguish his psychology from his epistemology, it is also difficult to draw the line between either his psychology or his epistemology and his ontology. Psychology, as has been shown, for both Tennant and Dewey includes the ontological theory of personality; Tennant holding to the ego as an ontological entity, and Dewey denying the same. We have seen that this overlapping of psychology and ontology is exemplified also by Bode and others.

Epistemology as well as psychology, for both Tennant and Dewey, runs far over into the field of ontology. In the case of Tennant it proved necessary to follow the lines of his own presentation taking up almost as they occur, such ontological matters as he presents in the course of his discussion of his theory of knowledge. It will be observed as the present chapter develops, that the same procedure in the case of Dewey's epistemology results in no great confusion, and affords opportunity for a running comparison with the views of Tennant, whether similar or contrasting.

It seems impossible for either Dewey or Tennant to discuss the theory of knowledge without frequently bringing in references to the theory of *the thing known*. Tennant holds that the order of knowing is ontologically necessary for valid science. For Dewey, the *a priori* ontological necessity of anything is anathema. He insists on the non-dualistic *identity* of the knowing and being processes. Whether this insistence is only another form of *a priori* ontological dogmatism is a question to be answered after examination of the data. Both philosophers hold that knowing and being are necessarily related, whether by priority or by identity.

A dualist need not hold that there is any *a priori* necessity about the relation between knowing and being; but since, on the hypothesis that they are related, a larger integration is achieved than otherwise, and since no contradiction or other disintegrating element is introduced by the assumption, it is reasonable and proper to assume that knowing and being are probably ontologically related.

From several points of view, therefore, it is reasonable to accept the discussion of certain areas of ontology in the midst of the survey of the epistemology of a philosopher like Dewey.

Dewey's writings in psychology, as he himself indicates, were largely produced in his earlier years, and in his latest writings he does not regard psychology as his field of specialization. Therefore, after a brief summary of his latest word on the subject, we began at the beginning and devoted the greater attention to the early period. Quite the *opposite* is the case in his epistemology. His *Logic*[1] is his last written book,[2] and is, I think, clearly his *magnum opus.*

Of the relation of his *Logic* to his earlier writings White says

> The *Logic,* which appeared in 1938, is the work which attempts to demonstrate what was only suggested in 1900 and partially treated in 1903. The success or failure of Dewey's logical project of 1900 can only be judged on the basis of the book he wrote in 1938.[3]

Dewey, himself, says[4]

> This book is a development of ideas regarding the nature of logical theory that were first presented, some forty years ago, in *Studies in Logical Theory;* that were somewhat expanded in *Essays in Experimental Logic* and were briefly summarized with special reference to education in *How We Think.* While basic ideas remain the same, there has naturally been considerable modification during the intervening years. While connection with the problematic is unchanged, express

> identification of reflective thought with objective inquiry makes possible, I think, a mode of statement less open to misapprehension than were the previous ones. The present work is marked in particular by application of the earlier ideas to interpretation of the forms and formal relations that constitute the standard material of logical tradition. This interpretation has at the same time involved a detailed development, critical and constructive, of the general standpoint and its underlying ideas.

Dewey's *Quest for Certainty*[5] is more popular and less technical than his *Logic*. It represents the same mature period in his philosophy and forms a valuable introduction to the later work. It seems best, therefore, to begin the investigation of Dewey's epistemology with the study of his *Quest for Certainty* and then to study his *Logic*, bringing in related materials from his earlier writings at such time as they may be most relevant.

The Quest for Certainty

The first chapter of the work is entitled "Escape from Peril". There are two historical methods of seeking security from hazard, says Dewey, the one through religion, later supplanted by philosophy, the other, through the arts and crafts, and labor. He thinks that religion and philosophy have generally frowned upon the practice of labor, as being material, and have emphasized contemplation and abstraction as being more spiritual. He gives much emphasis to tendencies like the Hindu search for Nirvana, the Aristotelian ideal of the contemplative static absolute, the "unmoved Mover", and the Pythagorean and rationalistic notion that abstract number or form governs or produces reality.

There has been a tendency in religion and philosophy to turn from the world of laborious arts and crafts, and to turn toward asceticism, abstraction, rationalism, and mere contemplation; and this tendency has doubtless been at times an escapism. But when Dewey with no pretence of data says, as he does repeatedly, that this has been the overwhelmingly prevailing trend, he does not recall his Hebrew, Greek, German, French, or English philosophy or culture. The history simply is not so.

Dewey often sets himself up *contra mundum*. When he says

> The souls who have predicted that by means of the arts man might establish a kingdom of order, justice and beauty through mastery of nature's energies and laws have been few and little heeded.[6]

he is ignoring a great stream of tendency, I think the prevailing one in religion and philosophy from the tower of Babel to the United Nations. Several examples which seem to prove Dewey's lack of historical perspective may be presented at this point. He says

> Not the specific content of Greek thought is pertinent to present problems, but its insistence that security is measured by certainty of knowledge, while the latter is measured by adhesion to fixed and immutable objects, which, therefore, are independent of what men do in practical activity.[7]

But the Greeks did not adhere to "fixed" or "immutable" objects. There are others who observe Dewey's lack of understanding of Greek philosophy, especially that of Aristotle.[8]

John Dewey in his *Logic* (p. 130) quotes the Ross translation of Aristotle's *Metaphysics* (1063 a) which renders *ta deuro* "the things of this earth," and *ta kata ton kosmon* "the heavenly bodies." Now I am not the only one who says that John Dewey does not understand Aristotle's system of philosophy. Professor John Herman Randall of Columbia University in his chapter in the Schilpp volume, *The Philosophy of John Dewey* (p. 102) says

> . . . most of what he has explicitly said about Aristotle has conveyed little real historical illumination; it has been far more relevant to St. Thomas than to the Greek. Much of what he points to is there; much is not, and is to be found only in the scholastic tradition. It would scarcely be proper and pertinent, even if true, to maintain here that the total impression he gives of Aristotelian thought is nevertheless, false. It would be more to the point to ask, why should Dewey view Aristotle through the eyes of the neo-Thomists? Why should he not see Aristotle for what he is . . .

The paragraph in Dewey's *Logic* referred to above is as follows:

> The contrast between the conception of substance that has been set forth herewith [and] the Aristotelian ontological conception is, of course, intimately connected with the great change which has taken place in science, i.e., its complete shift from immutable objects to correspondences of changes. Aristotle said, "It is absurd to make the fact that the things of this earth change and never remain the same the basis of our judgments about the truth. For in pursuing the truth one must start from things that are always in the same state and never change. Such are the heavenly bodies; for they do not appear to be now of one nature and now of another, but are always manifestly the same and do not change."[9]

I must point out that (1) Ross' translation itself is extremely loose and, I think, unjustifiable in certain particulars. (2) Dewey has ignored the context. Furthermore, Dewey has (3) made several verbal alterations in copying the Ross translation. The older M'Mahon translation[10] renders *ta deuro metaballonta kai medepote diamenonta en tois autois,* "things that are here as subject to change and which never permanently continue in the same dispositions"; and renders *ta kata ton kosmon* "those bodies that are regulated according to the orderly system of the Universe."

In the context Aristotle is arguing against Heraclitus and Protagoras. He says

> And perhaps if one had questioned Heraclitus himself in this way one might have forced him to confess that opposite statements can never be true of the same subjects. But, as it is, he adopted this opinion without understanding what his statement involves.[11]
>
> The saying of Protagoras is like the views we have mentioned; he said that man is the measure of all things, meaning simply that that which seems to each man also assuredly is.[12]

Against such absurdity Aristotle argues humorously that it is as though a man were to press his finger below his eye, and then insist that all things near at hand are double because he sees them double, with his finger under his eye. For those who do not put their fingers in their eyes, that which is one, appears to be one.

Aristotle is not here contrasting the things on this earth with the heavenly bodies, but merely contrasting a ridiculous philosophy of change with the normal observation of the "orderly system of the universe."

Dewey fails to call attention to the fact that, even in the Ross translation, the relative instability of things nearby is in the appearance of things to the man who puts his finger in his eye. Moreover his quotation is quite erroneous. Where Dewey says "The things of this earth change and never remain the same," the Ross translation reads[13] "The things of this earth *are observed to* change and never to remain *in* the same *state*." Where Dewey says, "things that . . . never change," the Ross translation says, "things that . . . *suffer no* change." Where Dewey says, "are always manifestly the same and do not change," the Ross translation reads, "are manifestly always the same and *share in* no change." The word which is rendered "are manifestly" in the Ross translation is *phainetai,* and refers to appearance.

I do not say that Dewey deliberately changed his material from the Ross translation, but that he missed the point of Aristotle's discussion of changing *appearances*. Dewey would hardly wish to take his stand with the man who would put his finger in his eye and declare that what he sees as double is really double.

In the following example some may disagree with my interpretation. However, it is not unreasonable to protest against unsupported imagination in the field of primitive cultural anthropology.

Dewey refers with the utmost assurance to the "survival of the impotency of man in those stages of civilization when he had few means of regulating and utilizing the conditions upon which the occurrence of consequences depend. [He says] As long as man was unable by means of the arts of practice to direct the course of events, it was natural for him to seek an emotional substitute . . ."[14]

Now, it seems to me, that ancient primitive man in simpler circumstances had about as much control over his environment as we have over ours, right here in modern New York City. Modern inventions have greatly *enlarged* our physical horizon, but I should like to see evidence to show that the percentage of control has materially increased. I question Dewey's statement that

> . . . primitive man had . . . no confidence in his own powers when they were reinforced by appliances of art.[15]

It should be remembered that Dewey composed his *Quest for Certainty* during the great inflation boom of the late twenties. Looking back from 1948, it is quite amazing to read

> We live surrounded with the protection of thousands of arts and we have devised schemes of insurance which mitigate and distribute the evils which accrue. Barring the fears which war leaves in its train, [Sic! as if that were a very little thing!] it is, perhaps, a safe speculation that if contemporary western man were completely deprived of all the old beliefs about knowledge and actions, he would assume, with a fair degree of confidence, that it lies within his power to achieve a reasonable degree of security in life.[16]

He further argues

> The chief consideration in achieving concrete security of value lies in the perfecting of *methods* of action. . . . It raises the question whether mankind has not now achieved a sufficient degree of control of methods of knowing and of the arts of practical action so that a radical change in our conceptions of knowledge and practice is rendered both possible and necessary.[17]

Having set up an artificial schematization of his own as a substitute for the history of religion and philosophy, Dewey proceeds to discuss the views of knowledge which he rejects taking them from the tendency in philosophy which he says has been all-pervading. The rejected epistemologies are not Pythagorean numerologies nor rationalisms teaching that *ratio est causa essendi.* The rejected epistemologies are those which Dewey designates as falling within the "spectator theory of knowledge." Under this descriptive head, he includes all theories which regard any aspect of truth as existing apart from the knowing process. That the world is round was not a "truth" before Columbus' day. Dewey says

> Telling the story of the universe in the form of rational discourse instead of emotionalized imagination signified the discovery of logic as a rational science. Conformity on the part of supreme reality to the requirements of logic conferred upon its constitutive objects necessary and immutable characteristics . . .
>
> The geometry of Euclid doubtless gave the clue to logic as the instrument of translation of what was sound in opinion into the forms of rational discourse. . . . It seemed to disclose a world of ideal (or nonsensible) forms which were connected with one another by eternal and necessary relations which reason alone could trace.[18]

Dewey does not rule out entirely the value of traditional logic and Euclid. He says, in fact, that they are a permanent contribution to western civilization. But he holds that they were not an unmixed good. He says

> But with all our gratitude for these enduring gifts, we cannot forget the conditions which attended them. For they brought with them the idea of a higher realm of fixed reality of which alone true science is possible and of an inferior world of changing things with which experience and practical matters are concerned.[19]

It need not be denied that some philosophers regarded abstract logic and mathematics as "higher" and regarded changing things as "inferior." It may be questioned, however, whether such was the prevailing view in the field of philosophy. Evidence is not wanting to show that logic and mathematics were valued by many philosophers for their proximate application to, and their practical utility in, the manipulation of changing things in the world of common experience. Dewey, however, insists that it was the direct result of logic and Euclid that "they glorified the invariant at the expense of change, it being evident that all practical activity falls within the realm of change." But Dewey goes beyond this, I think, unjustifiable accusation to charge that traditional logic and Euclid

> . . . bequeathed the notion which has ruled philosophy ever since the time of the Greeks, that the office of knowl-

> edge is to uncover the antecedently real, rather than, as is the case with our practical judgments, to gain the kind of understanding which is necessary to deal with problems as they arise.[20]

In the last quoted words we have an amazing leap from the improbable to the preposterous. Suppose that the influence of the discovery of logical and mathematical truths led philosophers, as Dewey says, to regard logical and mathematical abstractions as "higher," and scientific processes as "inferior"; to leap from this unhistorical hypothesis to the conclusion that the discovery of logic and mathematics was what led the majority of mankind to suppose that the business of knowing is "to uncover the antecedently real" is a brilliant example of *non sequitur.* For the majority of mankind, is not the process of empirical experimentation in the most ordinary exercise of laborious arts and crafts a process of finding out what is so, or, to use Dewey's exact words, an effort "to uncover the antecedently real"? Pasteur *discovered* or, to use Dewey's own words again, "uncovered the antecedently real" truth that biological life comes from biological life, that infection does not come from a sterile field. The entire process of modern sterile surgery is based upon this discovery, or uncovering of antecedent truth.

Nevertheless, it is a most fundamental principle in Dewey's epistemology, and essential to his *a priori* negative view that there is no truth apart from the knowing process, no "antecedently real" to uncover. This is the essential germ of Hegelian *Negativität.* The knower and the known are numerically identical.

The ancient Babylonians, Egyptians, and Mayas, apparently independently, and in very different manners, all had systems of finding out, or "uncovering" through empirical and experimental means, the fact of the equinox. They were quite capable of using the discovery of this antecedent fact in their agricultural and other activities. That the invention of such abstract sciences as logic and mathematics was in any way causally connected with the notion of these ancient peoples that they could, by careful observation, *discover antecedent facts* about the seasons, is something which Dewey does not explain but merely asserts.

As a matter of fact, the abstract relationships of logic and mathematics seem to have been themselves discoveries of antecedent truths. It was true that the human mind could calculate the distance of a ship at sea by a process of triangulation, before the Greeks discovered this antecedently possible relationship. The possibility of manipulating digits with the use of a zero sign was always *discoverable,* but the discovery of the use of a zero is remarkably interesting.

Kroeber in discussing the origin of the zero sign says

> One of the milestones of civilization is the number symbol zero. This renders possible the unambiguous designation of numbers of any size with a small stock of figures. It is the zero that enables the symbol 1 to have the varying values of one, ten, hundred, or thousand. Our zero, along with the other nine digits, appears to be an invention of the Hindus, approximately twelve or fifteen hundred years ago. We call the notation "Arabic" because it was transmitted from India to Europe by the Arabs . . . The only[21] nation besides the Hindus to invent a zero sign and the presentation of number values by position of the basic symbols, were the Mayas of Yucatan . . . This Maya development constitutes an indubitable parallel with the Hindu one. So far as the involved logical principle is concerned, the two inventions are identical. But again the concrete expressions of the principle are dissimilar. The Maya zero does not in the least have the form of ours or of the Hindus' zero. Also the Maya notation was vigesimal where ours is decimal. They worked with twenty fundamental digits instead of ten . . . Obviously there can be no question of a common origin for such a system and ours. They share an idea or a method, nothing more. . . . It is interesting that of the two inventions of zero the Maya one was the earlier. The arithmetical and calendrical system of which it formed a part was developed and in use by the time of the birth of Christ. It may be older; it certainly required time to develop. The Hindus may have possessed the prototypes of our numerals as early as the second century after Christ, but as yet without the zero,

> which was added during the sixth or according to some authorities, not until the ninth century.[22]

It was always true in the abstract that if and when any culture began to use figures for numbers, the invention of a zero sign would have basic utility value in the manipulation of the figures, and that, whether the numerical system were decimal, vigesimal or what not. Note Kroeber's use of the words "the involved logical principle . . . identical." Here we have one of the most noted, if not the most noted living anthropologist, with no reference to Dewey, of course, illustrating *prior* logical principle from unquestionable cultural data. The basic truths in the abstract principles of logic were always true, whether man knew them as such or not. For Dewey such ideas as *prior principles* are vigorously to be rejected. He insists that the truths of logic and mathematics are not discovered but are *produced* by the process of inquiry. One wonders how he would explain the fact that three so radically different cultures as the Hindu, the Maya, and the Babylonian could independently produce so complex a concept as that of the zero symbol, in such divergent numerical systems, if the process of inquiry itself has no reference to previously existing abstract possibilities. And yet independent discoveries of formulae usefully functioning in mathematical relationships have recurred many times in the course of our cultural history.

It is not suggested that the process of inquiry *produces* nothing, or *merely* discovers. The contention of this thesis is that the categories of epistemology are more than mere inventions. The culture which first said that "one plus one equals two" instead of "one plus one equals more," was surely *inventing,* but it was *also discovering* a category of thought, namely the possibility of manipulating units in abstraction.

Dewey continues

> Special theories of knowledge differ enormously from one another. Their quarrels with one another fill the air. The din thus created makes us deaf to the way in which they say one thing in common. The controversies are familiar. Some theories ascribe the ultimate test of knowledge to impressions passively received, forced upon us whether we will or no.

> Others ascribe the guarantee of knowledge to synthetic activity of the intellect. Idealistic theories hold that mind and the object known are ultimately one; realistic doctrines reduce knowledge to awarenesss of what exists independently, and so on. But they all make one common assumption. They all hold that the operation of inquiry excludes any element of practical activity that enters into the construction of the object known. Strangely enough, this is as true of idealism as of realism, of theories of synthetic activity as of those of passive receptivity . . .
>
> The common essence of all these theories, in short, is that what is known is antecedent to the mental act of observation and inquiry, and is totally unaffected by these acts; otherwise it would not be fixed and unchangeable . . . A spectator theory of knowledge is the inevitable outcome . . . It would be hard to find a more thorough-going confirmation than this conclusion provides of the complete hold possessed by the belief that the object of knowledge is a reality fixed and complete in itself, in isolation from an act of inquiry which has in it any element of production of change.[23]

Note the typical method Dewey uses, the all or none device, in the above sentences. I once spoke to a father about the growing petty-criminal activities of his two boys. He replied, "I don't believe in knocking a boy across the room with your fist every time he opens his mouth," and proceeded to do nothing whatsoever to correct his sons' trend. Dewey surely knows that the correspondence and coherence theories of knowledge to which he has just referred in the context, do not "hold that the operation of inquiry *excludes any element* of practical activity that enters into the construction of the object known." Where is the epistemology which totally excludes invention in the knowing process? We may believe that it makes no immediate difference to the sun, whether its light falls upon inanimate objects, or comes within the knowledge of a personal being. In such a case we might say that knowledge "does nothing to the real, except just to know it."[24] We might say of Mount Fuji that "the real object is the object so fixed in its regal aloofness that it is a king to any beholding mind that might gaze upon it."[25] Thus the spectator theory of knowledge may be a *part* of any epistemology except Dewey's. However, the kind of knowledge of the sun and the kind of knowledge of Mount Fuji he refers to does not exclude invention with reference thereto. Pasteur's discovery of the principles of sanitation and sterile surgery surely involved *both* discovery *and* invention. In the case of numerical symbols, the decimal, vigesimal, and sexagesimal systems could be regarded as pure invention, but the discovery that a zero symbol is a useful device in the manipulation of numerical figures, partakes of the element of discovery of logical possibilities. It is a part of the discovery of the epistemological category of number.

Dewey gives this caricature of other epistemologies, representing them as completely denying all invention in the process of inquiry, in advancing his own view that the inquiry process is the sum total of all that is or could be.

In the conclusion of Dewey's first chapter,[26] he informs the reader that the following chapters will deal with five phases of the development of his theme. Chapter II entitled "Philosophy's Search for the Immutable", is the development of the first of these five phases. Dewey proposes to discuss the effect of what he calls "the traditional separation" between theory and practice, knowledge and action, upon "the conception of the nature of philosophy, especially in connection with the question of the secure place of values in existence".

His first paragraph in this chapter is an attack upon the notion that we must distinguish between knowledge and belief, and that when we say *we know* we mean that we are certain, but when we say *we believe* we do not imply the same degree of certainty. Dewey strongly objects to the notion that "the certain and knowledge are coextensive". This is merely a matter of terminology if taken at its face value. If we do not mean that we know when we say that we are certain, or if we do not mean that we are certain when we say that we know, then we merely need to redefine our terms. Beneath the surface, however, there is far more than a mere matter of the use of words. Dewey is really denying that there is such a thing as truth, *Dasein und Sosein,* apart from the knowledge-inquiry process. Dewey states the position which he is seeking to destroy

> We *believe* in the absence of knowledge or complete assurance. Hence the quest for certainty has always been an effort to transcend belief. . . . Since as we have already noted, all matters of practical action involve an element of uncertainty, we can ascend from belief to knowledge only by isolating the latter from practical doing and making.[27]

It will be worth our while to stop and unravel the tangle of the above quotation. It must first be noted that Dewey is insisting upon the identity of two very different concepts: (1) the concept of the view which is called rationalism in this thesis, that abstract *a priori* reason governs or produces ontological existence, and (2) the dualistic concept of brute fact, according to which the world was round, regardless of all abstractions of logic and mathematics, before the notion of its roundness ever arose in the process of human inquiry. With these two notions kept distinctly in mind, notions which Dewey confuses, it will be seen that the last above quotation from Dewey may reasonably be defended in part, so far as to recognize that there have been many philosophers who have held that *a priori* abstract truth governs existence. It must be made clear, however, that a far greater number of people, and a definitely stronger tendency in philosophy, has regarded brute fact as truly "there" and truly "so", prior to abstract considerations of logic and mathematics and prior to inquiry.

Dewey's palpable error in the last quoted material above is in the suggestion that, "all matters of practical action involve an element of uncertainty," by comparison with the isolated certainty of "knowledge." For a far more influential group of philosophers and a far larger number of common intelligent people, it is practical action which has uncovered brute fact, and which gives an incomparably higher degree of certainty than the abstractions of isolated "knowledge." Dewey, however, lives in a cultural sphere in which influential philosophers are seldom heard to say, "that which we have seen and heard, which our hands have handled of the word of life, declare we unto you."[28]

After the rise of the scientific revolution of the seventeenth century, Dewey says, the "laws" of nature assumed a fixed and rigid character which had formerly been the property of logical and mathematical "forms".

> A mathematical science of nature couched in mechanistic terms claimed to be the only sound natural philosophy. Hence the older philosophies lost alliance with natural knowledge and the support that had been given to philosophy by them [by it?]. Philosophy in maintaining its claim to be a superior form of knowledge was compelled to take an invidious and so to say malicious attitude toward the conclusions of natural science.[29]

Again the reader must untangle the two threads which Dewey has twisted together. It is true that rationalistic philosophy sometimes took a hostile or malicious attitude toward natural science; but Dewey forgets the vast area of human thought, of the period referred to, which was at that time called *natural philosophy.* Take for example the law of falling bodies. It had previously been supposed that a heavier body would fall more rapidly, but was this supposition based upon abstract logical or mathematical reasoning? Not in the least! It was based upon observation, very inadequate observation, indeed, but observation, nevertheless. A feather does not drop as rapidly as a stone. There was no way of accounting for air resistance. On the basis of *observation,* natural philosophy had supposed that a natural law existed in accordance with which lighter bodies would always fall more slowly. What caused the conflict was not by any means a clash between the methods of practice and the methods of theory. It was a clash between more adequate methods of practical experimentation and prior conclusions based on less adequate experimentation. That which took the "malicious attitude" toward experimental science was by no means logic or mathematics, but an *inferior type* of natural science.

Most noteworthy is the fact that both the advanced experimental science and the retarded "natural philosophy" assumed that, on the one hand, logic and mathematics of themselves could not discover the truth, and assumed on the other hand that the truth, *existing prior to inquiry,* the truth of brute fact, could be discovered by experimental processes.

After approximately ten pages of a rather indifferent attack upon either abstract or theistic norms in the realm of value, seeking to show the identity of the concept of such norms with both rationalism and dualistic realism, Dewey comes back to epistemology with words ". . . the essence of pragmatic instrumentalism [note the term] is to conceive of *both* knowledge and practice as means of making goods—excellencies of all kinds—secure in experienced existence.[30] He continues

> Just as in science the question of the advance of knowledge is the question of *what to do,* what experiments to perform, what apparatus to invent and use, what calculations to engage in, what branches of mathematics to employ or to perfect, so *the* problem of practice is what do we need to know, how shall we obtain that knowledge and how shall we apply it?[31]

Facts are indeed stubborn things! Dualism will intrude. Attention should be given to the innocent-looking word, "what", as it occurs twice in the above material, in each case followed by a gerundive. "*What* to do" and "*What* do we need to know", if these phrases do not signify anterior existence, logical principles and brute facts, then they have no meaning whatsoever in any language which we mortals use.

We shall see later that Dewey wishes to invent a new theory of language, "in which form and matter are not separated".[32] Participles are to take the place of nouns, and gerundives will doubtless prevail everywhere.[33] But in present day human language, Dewey's uses of "what" signify prior existents of some kind.

In the concluding pages of the chapter now under consideration, Dewey makes several references to the progress of modern science. He says

> It is more or less of a commonplace to speak of the crisis which has been caused by the progress of the natural sciences in the last few centuries.[34]
>
> . . . according to the religious and philosophic tradition of Europe, the valid status of all the highest values, the good, true and beautiful, was bound up with their being properties

> of ultimate and supreme being, namely, God. All went well as long as what passed for natural science gave no offence to this conception. Trouble began when science ceased to disclose in the objects of knowledge the possession of any such properties.[35]
>
> . . . for over two thousand years the weight of the most influential and authoritatively orthodox tradition of thought . . . has been devoted to the problem of a purely cognitive certification (perhaps by revelation, perhaps by intuition, perhaps by reason) of the antecedent immutable reality of truth, beauty and goodness. As against such a doctrine, the conclusions of natural science constitute the materials of a serious problem. The appeal has been made to the Court of Knowledge and the verdict has been adverse.[36]

But what are the data in which modern science has rendered its verdict contrary to theism? Dewey fails to specify. As a theist, the writer has personally spent a considerable amount of time and attention upon the physical and biological sciences. Many theists indicate their great delight and edification in such studies. Some in fact are quite prepared, on what seem full and adequate grounds, to charge Dewey with waving the flag of science as a camouflage.

What has been the verdict of science with reference to Dewey's own criteria? He charges that traditional orthodoxy has adhered to "the antecedent immutable reality of truth, beauty and goodness."[37] What about the "antecedent . . . reality of truth"? Has science rendered a verdict for or against this tenet of the "orthodox tradition"? It would seem that if there is one word greater than all others in the history of modern science it is the word "discovery." Fact after fact of revolutionary significance in our practical lives has been discovered. Did Columbus invent America? Or were the law of falling bodies and the fact of atmospheric pressure produced in and by the process of the inquiry without prior ontological truth? If there is one thing which modern science seems to have *destroyed,* it is the Hegelian dialectical irrationalism or *Negativität,* the skeleton of which is still the backbone of Dewey's philosophy. The world which science investigates has its *Dasein* and its *Sosein* which modern science teaches us to *discover,* with which it teaches us to interact, and upon the facts of which it teaches us to make our inventions practically worth while.

Dewey proceeds to discuss the "problem" of modern science and its impact upon culture.

> As long as the notions persist that knowledge is a disclosure of reality, of reality prior to and independent of knowing, and that knowing is independent of a purpose to control the quality of experienced objects, the failure of natural science to disclose significant values in its objects will come as a shock.[38]

A typical Deweyism! Why does any man couple together two such divergent conceptions and seek to destroy them both together? Why? Perhaps because no one with any intelligence would plead guilty to the second charge, teaching that "knowing is independent of all purpose to control"; and few will take the time to analyze the utter incongruity of coupling with such a thought, the generally accepted concept of "reality prior to knowing" or the idea that there is *something there* to be controlled.

There are other such incongruous couplings in the immediate context, such as "properties of Being independent of human action." Many have supposed that values are in part at least "properties of Being," but few have been guilty of teaching that they have been "independent of human action."

Constructively Dewey proceeds to argue that "Desires, affections, preferences, needs of interest, at least exist in human experience; they are characteristics of it", as though this were a new discovery![39] As though the Book of Proverbs had never been written!

With reference to moral value Dewey suggests

> Suppose . . . men had been systematically educated to believe that the important thing is not to get themselves personally "right" in relation to the antecedent author and guarantor of these values but to form their judgments and carry on their activity on the basis of public, objective and shared consequences.[40]
>
> Philosophy which is willing to abandon its supposed task of knowing ultimate reality and to devote itself to a proximate human office might be of great help in such a task.[41]

The sentences just quoted again give the typical Dewey false antithesis. Why must one completely disregard personal moral responsibility, or being "right" with God, in order to be interested in public social values? Why must philosophy give up the hope of knowing any ultimate reality in order to be of use in proximate human affairs?

It is surprising that there have not been more sober-minded philosophy teachers to expose the fallacies exhibited in such passages as the chapter which has just now been discussed. One does find the penetrating analysis and thorough-going criticism of Brand Blanshard.[42] And yet perhaps the reason there have not been more, is that Dewey until recently has not been studied extensively by philosophers but rather by school teachers, social workers and others, who took it for granted that he was competent in the field of philosophy, which they were not prepared to discuss in a critical way.

It is not surprising, however, that Dewey's philosophy has been tremendously popular among the younger generation in the years between the two world wars. The years immediately preceding the first world war were years of rapidly expanding optimism in all manner of social projects such as the single-tax[43] propaganda. The abandonment of stern norms and hard, cold Aristotelian logic, was a popular tendency.

Since the first world war there has been a strong tendency to throw off restraints, a tendency to teach that it is not of any importance to know the laws of identity, non-contradiction, etc., and that personal or individual responsibility to prior ethical norms may be lightly brushed aside. Such views have surely taken our unthinking generation by storm. There is no ontological world of fact to be discovered. There are no *a priori* laws of navigation, discovered by generations past, carefully preserved by the prudent, to be thoroughly mastered before one risks the lives of his companions in uncharted waters. There are no rules for the ship of state, no rocky facts on distant shores. Our generation makes up its rules as it sails along, and produces the continents as the voyage proceeds. No wonder Dewey's philosophy has been popular.

The second step in the five-fold outline of the book, with which

Dewey concluded his introductory chapter is ". . . an account of the way in which modern philosophies have been dominated by the problem of reconciling the conclusions of natural science with the objective validity of the values by which men live and regulate their conduct."[44] This purports to be the step taken in Chapter III entitled "Conflict of Authorities". The first sentences of the chapter state the problem.

> It is the theme of the present chapter that modern philosophy, understanding by this term that which has been influenced by the rise of the newer natural science, has contained within itself an inner division. It has tried to combine acceptance of the conclusions of scientific inquiry as to the natural world with acceptance of doctrines about the nature of mind and knowledge which originated before there was such a thing as systematic experimental inquiry.[45]

It is quite clear what Dewey means by the words "doctrines about the nature of mind and knowledge". But what are "the conclusions of scientific inquiry as to the natural world" to which he refers? The reader will search the chapter in vain for anything recognizable as conclusions of modern science in regard to the nature of the world, which could in any way be answerable to the term in Dewey's problem as here stated. The chapter consists in the recounting of various types of philosophy, all of which have assumed that there is some kind of a world to investigate and that in this world there are values to be discovered. In other words, these philosophies have been concerned with what Dewey terms "The Quest for Certainty." He summarizes the matter in his concluding paragraphs.

> Why has modern philosophy contributed so little to bring about an integration between what we know about the world and the intelligent direction of what we do? The purport of this chapter is to show that the cause resides in unwillingness to surrender two ideas formulated in conditions which both intellectually and practically were very different from those in which we now live. These two ideas, to repeat, are that knowledge is concerned with disclosure of the characteristics of antecedent existences and essences, and that the properties

> of value found therein provide the authoritative standards for the conduct of life. Both of these traits are due to quest for certainty by cognitive means which exclude [Sic] practical activity—namely, one which effects actual and concrete modifications in existence.[46]

Dewey obviously wishes to "exclude" the notion that knowledge is sometimes concerned with the discovery of antecedent truth, and that value is sometimes found in antecedently existing reality; but the suggestion that the philosophies which he has reviewed in this chapter "exclude" the type of practical activity to which he refers is preposterous.

Dewey begins his survey of different philosophies with the Greeks. Forgetting that he had referred to the "more judicious method of the ancients in basing their conclusions about knowledge on the nature of the universe in which knowledge occurs,"[47] he says

> For obvious reasons, Greek thought, from which stem the philosophic conceptions about the nature of knowledge as the sole valid grasp or vision of reality, did not have this problem [the problem of "reconciling . . . the findings of scientific knowledge with the validity of ideas concerning value"]. Its physics were in complete harmony with its metaphysics, and the latter were teleological and qualitative.[48]

One wonders what particular *phase* of Greek philosophy produced a physics completely in harmony with its metaphysics. Not Plato or Aristotle, for both recognized brute fact as distinguishable from rational form, and Aristotle was particularly noteworthy for his experimental methods. For Dewey, Greek philosophy seems to be not something ontologically existent, to be discovered by diligent research: it seems to be indeed, for him, produced in any by his own process of inquiry.

He proceeds

> The need of adjustment of the results of knowledge and the apprehension and enjoyment of the highest good came when, in the seventeenth century, new methods of inquiry gave an entirely new turn to the conceptions which could be entertained about the natural world.[49]

After pointing out that Greek philosophy came into the modern world through medieval Hebrew and Christian (he might have added Mohammedan) writers, he states, "But the supreme place of good as a defining property of the ultimately real remained the common premise of Jew, Catholic, and Protestant."[50] The statement would be true of an inadvertent element in Augustine, referred to by Tennant (See p. 221), and of some prominent aspects of Plato, some would say of Platonism as a whole. It could be applied to some types of mysticism. It would well describe Christian Science. But Dewey is not characterized by careful discrimination in his sweeping gestures toward "history". His statement as it stands is false. Judaism, Roman Catholicism, and Protestantism in their official historical documents, Biblical, and creedal, are overwhelmingly committed to the position that the evil is just as real as the good. Pharaoh is believed to be just as real as Moses; Judas Iscariot, just as real as Jesus Christ. That "Jew, Catholic, and Protestant" hold to "the supreme place of good as a *defining* property of the ultimately real," is far from fact.

It is Dewey's opinion that modern science has destroyed the possibility of regarding nature teleologically, though he gives no data for the conclusion. He thinks, however, that philosophy and religion, before the rise of modern science, had regarded nature as organized in a series of gradations ascending from the mere material up to mind and ideal forms. This may have been true with the exception that separate ideal forms were not commonly believed in except by those who adhered more or less to the Platonic tradition as distinct from the Aristotelian. Dewey says

> When the hierarchical ascent of nature to mind and to ideal forms was disturbed by the conviction that the subject-matter of natural science is exclusively physical and mechanistic there arose the dualistic opposition of matter and spirit, of nature and ultimate ends and goods.
>
> Qualities, excellencies and ends that were extruded from nature by the new science found their exclusive abode and warrant in the realm of the spiritual, which was above nature and yet which was its source and foundation. The function of reason in determination and enjoyment of the good no longer

> formed the consummation of nature. It had a distinct and separate office. The tension created by the opposition and yet necessary connection of nature and spirit, gave rise to all the characteristic problems of modern philosophy. It could neither be frankly naturalistic, nor yet fully spiritualistic to the disregard of the conclusions of physical science. Since man was on one hand a part of nature and on the other hand a member of the realm of spirit, all problems came to a focus in his double nature.[51]

In these words, especially the first five lines of the quotation, Dewey seems to identify modern science with the mere philosophy of materialism. It is true that the older materialism sought to explain all things mechanistically but surely Dewey does not identify that philosophy with science! Yet that seems to be his view in the context now under consideration.

Dewey now proceeds to deal with eight different types[52] of philosophy which have wrestled with the "problem" of the quest for certainty. Spinoza, Dewey greatly admires. Granted his terms, he achieved a complete identification of theory and practice, knowledge and the thing known. The ethical values were found within this identification. Spinoza however is not satisfactory because, although Dewey does not specifically mention the point, his philosophy was static.

> There were difficulties from the side of science itself. Its experimental trend, as distinct from its mathematical strain, was adverse to Spinoza's unquestioning faith that the logical order and connection of ideas is one with the order and connection of existence. For as the new science developed, the experimental necessity for sense data and verification by observation reduced the role of logical and mathematical conceptions from a primary to a secondary rank.[53]

The philosophy of "the two-fold nature of truth," faith and reason in two separate realms, is briefly touched upon. Next the philosophy of Kant is discussed at greater length. Kantianism was a serious attempt to reconcile reason and practice, pure reason and practical reason, yet Kantianism is rejected because it also put theory and practice into two separate realms. Cartesianism is briefly dealt with and rejected for the same reason.

Kant's idealistic successors, Fichte and Hegel, are held up for praise. Fichte's system of idealism "attempted unification of the cognitive and the practical from the side of moral self, the self from which issues the imperative of duty. The 'is' of knowledge is to be derived from the 'ought to be' of morals."[54]

Hegelianism is given the highest praise. It has the same identification of knowledge and the thing known to be found in Spinoza, except that Hegelianism is dynamic whereas Spinozism is static. Dewey says

> Perhaps there is no system more repugnant to the admirers of Spinoza than the Hegelian and yet Hegel himself felt, and with considerable reason, that he was simply doing in a specific and concrete way what Spinoza had undertaken in a formal and mathematical way.[55]

Hegel's creation of a new logic, "to establish the identity of meaning and being" is held up for praise. Yet Hegelianism is rejected because the dynamic unified meaning-being process is held to be a manifestation of the absolute Spirit, and as we have seen in the study of Dewey's psychology, Dewey long ago abandoned the absolute Spirit and put in its place the social organism.

The materialism of Herbert Spencer is next briefly discussed, and then, at greater length, an unnamed philosophy which might be identified as a combination of logical positivism and phenomenology.

All of these philosophies are rejected because of their "disparaging view of practical activities." Even Herbert Spencer!

> Depreciation [of a practical activity] is warranted on the basis of two premises: first, namely, that the object of knowledge is some form of ultimate Being which is antecedent to reflective inquiry and independent of it; secondly, that this antecedent Being has among its defining characteristics those properties which alone have authority over the formation of our judgments of value—that is, of the ends and purposes which should control conduct in all fields—intellectual, social, moral, religious, aesthetic. Given these premises—and only if

> they are accepted—it follows that philosophy has for its sole office the cognition of this Being and its essential properties.[56]

Following these words, Dewey frankly admits that much of the discussion of politics, morals, and art, has been carried on without reference to ultimate reality, but this, he says, makes his criticism stand out all the more sharply. The thrust of his drive seems to be in the very true words "traditional religion *does* refer all ultimate authoritative norms to the highest reality, the nature of God."[57] Dewey here opposes any normative concepts based upon "antecedent Being."

With Chapter IV, "The Art of Acceptance and the Art of Control" we begin consideration of the third and largest section of Dewey's argument; that section in which he proposes to show "how completely the traditional assumptions, mentioned above, have been abandoned in concrete scientific procedure."[58]

By this he means several different things. In part he merely means that knowing by doing has received far greater emphasis in the experimental methods of modern science than it had previously received. He says at the conclusion of the chapter last discussed, "Particularly we shall see how completely the separation of knowing and doing from one another has broken down."[59] No one should take exception to a statement of that kind except that it is an exaggeration.

But Dewey also means to show that in the process of modern science the assumptions of prior laws of logic and of prior ontological facts have been abandoned. He objects to "the old conceptions of knowledge as related to an antecedent reality."[60] And he objects to the "injection of an irrelevant philosophy . . . treating the results of mathematical-mechanistic science as a definition of natural reality in its own intrinsic nature."

There is constant reiteration of his objections to the dualism of "theory and practice, mind and body, ends and instrumentalities."[61] The same list is repeated on the following page with the terms "reason and experience" added. He complains that no widely held philosophy has yet come into existence to replace this dualism, and he says

> On this account any sincere empirical philosophy that holds

> to the possibility of the latter alternative [riddance of these dualisms] must be prophetic rather than descriptive. It can offer hypotheses rather than report of facts *adequately* in existence. It must support these hypotheses by argument, rather than by appeal to matters clearly within the range of easy observation. It is speculative in that it deals with "futures". Candour demands that these considerations be frankly set forth.[62]

But Dewey thinks that his new philosophy developed in the midst of the social milieu will not be subject to the usual weaknesses of speculation. He says

> There is a difference between support by argument from arbitrarily assumed premises, and an argument which sets forth the implications of propositions resting upon facts already vitally significant.[63]

The last quoted sentence contains two familiar elements in Dewey's processes of reasoning. (1) "Arbitrarily assumed premises" are ascribed to his opponents, as though the basic laws of logic and mathematics had not been discovered and wrought out with "blood, sweat, and tears" and abundant experimental verification in the maelstrom of human existence! (2) Dewey naively uses the word "implications" with no acknowledgment that the word itself covers his entire plunder of stolen goods, the *a priori* laws of logic which he assumes as he denies them.

Dewey proposes to take the physical sciences as his greatest field from which to draw examples of the elimination (1) of the separation of theory and practice, (2) of truth prior to the inquiry process. He argues that

> In the old scheme, knowledge, as science, signified precisely and exclusively turning away from change to the changeless. In the new experimental science, knowledge is obtained in exactly the opposite way, namely, through deliberate institution of a definite and specified course of change. *The* method of physical inquiry is to introduce some change in order to see what other change ensues; the correlation between these changes, when measured by a series of operations, constitutes the definite and desired object of knowledge.[64]

Just where in Aristotle's logic does Dewey find that knowledge, as science, signifies a turning away from change to the changeless? Or where does he find it in Newton or any other traditionalistic dualist?

Dewey constantly attaches such words as "changeless", "immutable", "fixed" and the like to all aspects of prior truth. But apart from a very few philosophical systems,—such as that of Spinoza, in which time seems to be an illusion, and such as a very limited aspect of Aristotle's philosophy, that which refers to the "Unmoved Mover",—apart from these, he is incapable of pointing to any prevalent philosophy corresponding to his definition of "the old scheme." We shall see presently that he had to concede change as a fundamental aspect of Greek philosophy of nature.

Dewey makes a very important distinction between "two degrees of control of change which differ practically but are alike in principle." He says

> In astronomy, for example, we cannot introduce variation into remote heavenly bodies. But we can deliberately alter the conditions under which we observe them, which is the same thing in principle of logical procedure . . . interconnected variations are observed. In physical and chemical matters closer at hand and capable of more direct manipulation, changes introduced affect the thing under inquiry.[65]

This is an important admission and should be kept in mind in reading those passages in which Dewey insists that knowledge always modifies the thing known, or always has to do with the control of the thing known. No doubt Dewey would explain away, if possible, the words "we cannot introduce variation into remote heavenly bodies. But . . . interconnected variations are observed." He frequently denies that we can know what we do not modify.

But Dewey continues

> . . . there is no difference in logical principle between the method of science and the method pursued in technologies. The difference is practical; in the scale of operations conducted; in the lesser degree of control through isolation of conditions operative . . . especially, since the dominant motive of large-scale regulation of the course of change is material

> comfort or pecuniary gain. . . . the same kind of intentional introduction and management of changes which takes place in the laboratory is induced in the factory, the railway and the power house.[66]

What are then the traits of experimental inquiry according to the processes of modern science, which support Dewey's view of the process of inquiry? He says

> While the traits of experimental inquiry are familiar, so little use has been made of them in formulating a theory of knowledge and of mind in relation to nature that a somewhat explicit statement of well-known facts is excusable. They exhibit three outstanding characteristics. The first is the obvious one that all experimentation involves *overt* doing, the making of definite changes in the environment or in our relation to it. The second is that experiment is not a random activity but is directed by ideas which have to meet the conditions set by the need of the problem inducing the active inquiry. The third and concluding feature, in which the other two receive their full measure of meaning, is that the outcome of the directed activity is the construction of a new empirical situation in which objects are differently related to one another, and such that the *consequences* of directed operations form the objects that have the property of being *known*.[67]

This is truly quite amazing. Point number one assumes that the environment is there as prior data before the inquiry process begins. Point number two, involving "ideas which have to meet the conditions set by the need of the problem" can mean nothing but the *prior* assumption of the laws of logic. To this most physicists would say "of course!" Point number three assumes "outcome" from something *out* of which it has *come*, "new" situations and "objects . . . differently related." All of which is a mere chaos of sound unless there are prior facts and truth to be investigated and prior rational principles according to which intelligent investigation must proceed. The only part of the statement which really harmonizes with Dewey's own views is the last clause, "that the *consequences* of directed operations *form* the objects that have the property of being *known*." The *consequences* of the experimental operations constitute or *"form"* the objects.

There was no object on the rack over my chemistry laboratory table, no zinc, no sulphuric acid, no test tubes, in fact there was no table, I was not there and nobody knew anything. But then an event occurred, operations *ex nihilo* began to take place so that I put the zinc into the sulphuric acid, put the retort under a bell jar with glass tubing attached, released hydrogen through the jet, ignited it so that it burned with a colorless flame, the final material left in the retort being zinc sulphate. Thus I came to know something about zinc and sulphuric acid by operations which *formed* the objects which I came to know. But not quite that, —there was still no I—. Thus some knowledge and some chemistry came to be!

I am glad my chemistry teacher was a dualist. The sulphuric acid was on the table, the zinc was obtained from the supply room and charged against my deposit, some little instruction (revelation!) was given beforehand by a laboratory assistant who had been there before. My "operations" did not "form" the objects with which I began, although they did form *in part* the results which I obtained.

I learned a little chemistry in the days when the experimental method was everything and the laboratory sciences were the dominant features of almost every university campus. I am told by those who specialize in the field of chemistry that undergraduate students nowadays learn more by teaching (revelation again!) and less by doing than they did when I studied freshman chemistry. Yet the truly great chemists[68] seem to feel that present methods are better, and most surely the science of chemistry has made tremendous progress in very recent years. I think, in fact, that nothing could be farther from the educational convictions of the leading teachers of chemistry or the convictions of the greatest research chemists, than Dewey's opinion "that the *consequences* of directed operations form [sic!] the objects that have the property of being *known*."

But Dewey seems to be completely unconscious of the implications of what he is saying. He goes straight forward in the very next paragraph to say

> The rudimentary prototype of experimental doing for the sake of knowing is found in ordinary procedures. When we are trying to make out the *nature* of a confused and unfamiliar object, we perform various acts with a view to establishing a new relationship to it, such as will bring to light *qualities* which will aid in understanding it. We turn it over, bring it into a better light, rattle and shake it, thump, push and press it, and so on. The object as it is experienced *prior* to the introduction of these changes baffles us; the intent of these acts is to make changes which will elicit some *previously* unperceived *qualities,* and by varying conditions of perception shake loose some *property* which as it stands blinds or misleads us. . . . The important thing in the history of modern knowing is the reinforcement of these active doings by means of instruments, appliances and apparatus devised for the purposes of disclosing relations not otherwise apparent, together with, as far as overt action is concerned, the development of elaborate techniques for the introduction of a much greater range of variations . . . in the *thing* under investigation.[69]

Dewey next takes up the discussion of the Greek attitude toward material nature in which he gives the Greeks their due far more than in some of his other passages. He says

> In fact, the Greeks were keenly sensitive to natural objects and were keen observers. . . . As far as observation . . . went, the Greeks went far. . . . as far as science extended, it dealt with the material of sense-perception as it directly offered itself to a keen and alert observer.[70]

The distinction between the Greek observation of nature and modern scientific experimental processes is not here the distinction between theory and practice but (1) the fact that the Greeks lacked "artificial appliances and means for deliberate variations of observed material." This is true of course so far as physics, chemistry and biology are concerned. But Dewey couples it with another distinction (2) namely, that the Greeks are charged with the arts of "acceptance" whereas modern science is an art of "control."

> The aesthetic attitude [of the Greeks] is of necessity directed

> to what is already there; to what is finished, complete. The attitude of control looks to the future, to production . . . before the rise of experimental method, change was simply an inevitable evil; the world of phenomenal existence, that is of change, while an inferior realm compared with the changeless, was nevertheless there and had to be accepted practically as it happened to occur. The wise man if he were sufficiently endowed by fortune would have as little to do with such things as possible, turning away from them to the rational realm.[71]

But on the contrary the fact is that the difference between the Greeks and the moderns is one of degree of achievement, not of kind of attitude. The Greeks built towers at the seacoast to measure the distance of approaching ships by triangulation. They had their science of medicine, and in architecture produced most remarkable achievements. Moreover, these were the men who responded to the Philippics of Demosthenes and who, under Philip's son, marched out to conquer the world.

Dewey himself recognizes that the matter of acceptance or control is only relative. He says

> . . . reading the index hand of a barometer as a sign of probable rain does not enable us to stop the coming of the rain. But it does enable us to change our relations to it . . . In other cases, as in the arts proper, we can not only modify our own attitude so as to effect useful preparation for what is to happen but we can modify the happening itself. This use of one change or perceptible occurrence as a sign of others and as a means of preparing ourselves, did not wait for the development of modern science. It is as old as man himself, being the heart of all intelligence. But accuracy and scope of such judgments, which are the only means with power to direct the course of events and to effect the security of values, depends upon the use of methods such as modern physics has made available.[72]

After all, this relative difference between modern physics and the ancient world is likely to be exaggerated. Changes in the recent past are difficult to see in perspective.[73] This is not to deny that the ratio of increase in mechanical devices has shown a sharp upward curve in the last three centuries. It is reasonable, however, to draw a comparison between our age and the age when fire was first put to use, the age when iron was discovered, the invention of the wheel in transportation, or of the arch in architecture, or the introduction of Arabic numerals, and double entry bookkeeping in trade and commerce.

Dewey has frequently stated up to the present point, that the Greek philosophy regarded truth and reality as unchanging, fixed, immutable. From this position he gracefully retreats in the pages now under discussion.

> For rest when it meant fulfilment was not dead quiescence but complete and therefore unchanging movement.[74]

But is this so very different from our scientific search for uniformity of sequence in nature?

The Greeks, says Dewey, regarded nature teleologically, but (1) Dewey confuses teleology with rationalism and (2) he begs the entire question as to the conclusions of modern physical science. He says

> From the standpoint of the doctrine that the purpose of knowledge is to grasp reality and that the object of cognition and real objects are synonymous terms, there was but one conclusion possible. This, in the words of a recent writer, was that "the Newtonian astronomy revealed the whole heavenly realm as a dark and limitless emptiness wherein dead matter moved under the impulse of insensate forces, and thus finally destroyed the poetic dream of ages.[75]

It would seem that the theory that "the object of cognition and real objects are synonymous terms" is far nearer to Dewey's own view than to the view of teleology held by the Greeks or by the Judeo-Christian tradition. Certainly for Newton and dualistic theists like him, to discover dead matter under the impulse of insensate forces, was no disappointment and not in the least contrary to theistic teleology. Newton expected to discover things which had *not* previously been the objects of human knowledge, and he had no reason to think that astronomical matter, when discovered, would be anything other than dead, or that astronomical force as such would be anything other than insensate, as he (Newton) believed God had created it.

Dewey makes much of the notion that modern physics has abolished the qualitative in the objective realm. He says

> The revolution in science effectively initiated by Galileo consisted precisely in the abolition of qualities as traits of scientific objects *as such*. . . . The work of Galileo was not a development, but a revolution. It marked a change from the qualitative to the quantitative or metric; . . . not until our own generation did science free itself from some basic factors of the older conception of nature. Much of the scientific revolution was implicit, however, in the conclusions which Galileo drew from his two most famous experiments. The one with falling bodies at the tower of Pisa destroyed the old distinction of intrinsic qualitative differences of gravity and levity, and thus gave an enormous shock to the qualitative explanatory principles of science. . . . it showed that the immanent motion of bodies was connected with a common homogeneous property [property but not quality, sic!] one measured by their resistance to being set in motion and to having their motion arrested or deflected when once set in operation. This property, called inertia, was finally identified by Newton with mass, so that mass or inertia became the scientific definition or stable coefficient of matter, in complete indifference to the qualitative differentiations of wet-dry, hot-cold, which were henceforth things to be explained by means of mass and motion, not fundamental explanatory principles.[76]

But what actually happened was merely that new properties or qualities were discovered *in addition to* those previously known. It is still true that temperature and moisture affect a violin regardless of all that we know, in addition, about H_2O.[77]

Galileo's discoveries "opened the way to description and explanation of natural phenomena on the basis of homogeneous space, time, mass and motion".[78] But Dewey is entirely wrong in saying that modern physical science in any way tended to abolish previously known qualities.

Dewey himself says in another context

> That heat is a mode of motion does not signify that heat and cold as qualitatively experienced are "unreal," but that the qualitative experience can be treated as an event measured in terms of units of velocity of movement, involving units of position and time, so that it can be connected with other events or changes similarly formulated.[79]

Dewey's supreme effort in this chapter in seeking to align modern physical science with his own philosophy is in the argument that modern physical science *"substitutes data for objects."*[80] By this distinction between data and objects, Dewey thinks that

> What science actually does is to show that any natural object we please may be treated in terms of relations upon which its occurrence depends, or as an event, and that by so treating it we are enabled to get behind, as it were, the immediate qualities the object of direct experience presents, and to regulate their happening, instead of having to wait for conditions beyond our control to bring it about. Reduction of experienced objects to the form of relations, which are neutral as respects qualitative traits, is a prerequisite of ability to regulate the course of change, so that it may terminate in the occurrence of an object having desired qualities.[81]

This passage together with several similar references in Dewey's *Experience and Nature* and in Whitehead's *Science and the Modern World* (pp. 106, 174 ff.), seems to furnish the "text" for Dennes' Chapter on "The Categories of Naturalism" in *Naturalism and the Human Spirit.*

But what is the difference between data and objects?

> That Greek science operated with *objects* in the sense of the stars, rocks, trees, rain, warm and cold days of ordinary experience is evident enough. What is signified by saying that the first effect of experimentation was to reduce these things from the status of objects to that of data may not be so clear. By data is signified subject matter for *further* interpretation; something to be thought about. *Objects* are finalities; they are complete, finished; they call for thought only in the way of definition, classification, logical arrangement, subsumption in syllogisms, etc. But data signify "material to serve"; they are

> indications, evidence, signs, clues to and of something still to be reached . . .[82]

But a dualist might ask where, in all the field of scientific investigation, the term, data, the given, is ever used, except with reference to that which is *prior* to the particular inquiry process under consideration. How our friends the chemists, or our friends the geologists, would shake their heads at the notion that data are not objects!

Although Dewey gives his own specialized definition of objects in the reference last quoted above, he says

> The remarkable difference between the attitude which accepts the objects of ordinary perception, use and enjoyment as final, as culminations of natural processes, and that which takes them [objects!] as starting-points for reflection and investigation, is one which reaches far beyond the technicalities of science. It marks a revolution in the whole spirit of life, in the entire attitude taken toward whatever is found in existence.[83]

Here inadvertently Dewey has come back to common usage in his terminology. Objects may be either regarded as final, or regarded as problematical. They are objects just the same.

On the same page he says

> Greek and mediaeval science formed an art of accepting things as they are enjoyed and suffered. Modern experimental science is an art of control.

But the difference between an object as problematical and an object as final is not a difference between ancient and modern science or between Greek and modern culture. Granted that there are some people who, in indolence, regard things as final which they "ought" to regard as problematical. Granted that there have been some groups or even some ages which have been characterized more by endurance than by aggression. Two remarks should be emphatically brought forward: (1) This does not constitute the difference between the Greeks and the moderns; and (2) such a distinction gives not the slightest warrant for Dewey's endeavors to rid the world of objective truth, much of which is really there to be investigated prior to the inquiry process.

Dewey himself knows well that the difference between the object as final and the object as problematical is only a relative difference, the same object or the same situation being both, at different times, or at the same time from different points of view. See for example his discussions of "ends" in his *Democracy and Education*.[84]

On pages 170f of the *Quest for Certainty* Dewey says

> The history of the theory of knowledge or epistemology would have been very different if instead of the word "data" or "givens," it had happened to start with calling the qualities in question "takens."[85]

Perhaps Dewey realized in part the weakness of his artificial distinctions, "data" and "objects". His substitution of "takens" has been widely quoted.

It should be said in concluding the discussion of this chapter in the *Quest for Certainty,* that (1) Dewey has made a very important contribution in bringing out the value of knowing by doing, but (2) he has not succeeded in showing that modern science offers any support to the efforts he puts forth to get rid of the notions of prior logical principles which should be followed, and prior ontological facts which may be discovered. On the general matter of science's quest for certainty, Th. Dobzhansky, Professor of Genetics and Zoology in Columbia University,[86] writes

> The attractiveness of science to many people lies in that it seems to answer the indestructible yearning for certainty so complete that no thinking mind can evade its acceptance. We like to believe that if we secure adequate data bearing on a scientific problem, then anybody with normal intelligence who takes the trouble to become acquainted with these data will necessarily arrive at the same conclusion regarding the problem in question. We like to speak of conclusions demonstrated, settled, proved and established.

Chapter V entitled "Ideas at Work" carries forward the third main division of Dewey's outline, that in which he proposes to show how completely concrete scientific procedure has abandoned the traditional assumption relating to *a priori* reality. He begins the chapter by pointing out that according to both idealism (variously called "objective idealism" and "rationalism") and also according to sensationalistic empiricism, "*reflective* thought, thinking that involves inference and judgment, is not originative. It has its test in antecedent reality as that is disclosed in some non-reflective immediate knowledge."[87]

He means that rationalistic objective idealism claims some contact with some kind of "non-reflective immediate knowledge," and also sensationalistic empiricism claims a different kind of "non-reflective immediate knowledge" by direct appeal to sensation. This may be true in part, true of a considerable group of sensationalists, and of a considerable group of idealists. However, many sensationalists and many idealists, accepting the charge of believing in antecedent reality, would nevertheless insist that thinking must be tested by a variety of experimental procedures, all of which are calculated to lead to reasonable probable inferences as to the nature of the antecedent reality. In other words experimentalism is not in the least inconsistent with certain types of idealism and certain types of sensationalism. Dewey's further charge against these two schools is "to both schools, reflection, thought involving inference, is *re*productive; the 'proof' of its results is found in comparison with what is known without any inference." Here again many in both schools might plead guilty to the former part of this charge and not guilty to the latter. Reflective thinking may be regarded as *re*productive in the sense that it claims to be reasonably accurate in its descriptive reference to the processes of ontological reality, whereas the "proof" of the results of reflective thinking, would be held by many in both schools to be quite other than "comparison with what is known without any inference."

These two schools thus "disposed of," Dewey proceeds.

> The goal of human thinking [for objective idealism] is approximation to the reality already instituted by absolute reason. The basic premise is also shared by realists. The essence of their position is that reflective inquiry is valid as it terminates in apprehension of that which already exists. When thinking introduces any modification into antecedent reality it falls into error; in fact, productive origination on the part of mind defines error.[88]

There have been many types of "realists," as Dewey well knows. He does not specify what type he has in mind. A dualistic realist might plead guilty to a small fraction of the accusation. Reflective inquiry is valid *in part* as it takes into account and does not ignore or deny that which already exists. If by "any modification" Dewey means any ignoring or denying of antecedent reality, then of course a dualistic realist would plead guilty to calling such "modification" error. The same should be said of Dewey's phrase "productive origination on the part of mind defines error." If productive origination means denying facts or ignoring facts or operating as though two contradictory propositions could both be true, then that is what a dualistic realist would call error.

What a dualistic realist, believing in the priority of the ordinary laws of logic, and the priority of existent substantive entities interacting in a world of brute fact, —that what a dualistic realist calls denying facts or ignoring facts or operating as though two contradictories could both be true, is precisely what Dewey calls introducing "modification into antecedent reality," and "productive origination;" and that in the true spirit of the Hegelian *Negativität,* identifying distinguishables and accepting contradictories. Dewey denies that these processes are erroneous.

Concluding his remarks in regard to idealism, sensationalism, and realism, Dewey says

> For the common premise of these philosophical schools, so opposed to one another in most ways, goes back to adoption of the idea about knowledge in relation to what is independently real which, originating in Greek thought, has become engrained in tradition.[89]

Moving forward with the main course of his argument, Dewey quotes from Bridgman, *The Logic of Modern Physics,* New York, 1927, p. 5, as follows:

> To find the length of an object, we have to perform certain physical operations. The concept of length is therefore fixed when the operations by which length is measured are fixed; that is, the concept of length involves as much as and nothing more than the set of operations by which length is determined. In general, we mean by any concept nothing more than a set

> of operations; *the concept is synonymous with the corresponding set of operations.*[90]

Note that Bridgman does not identify *objects* as mere concepts. His illustration of a concept is "length," not a bar of iron.

The above quotation is followed by one from Eddington, *The Nature of the Physical World,* London and New York, 1928, p. 255.

> The vocabulary of the physicist comprises a number of words such as length, angle, velocity, force, potential, current, etc., which we call 'physical quantities.' It is now recognized that these should be *defined* according to the way in which we recognize them when actually confronted with them, and not according to the metaphysical significance which we may have anticipated for them. In the old text-books mass was defined as 'quantity of matter'; but when it came to an actual determination of mass, an experimental method was prescribed which had no bearing on this definition.[91]

Note again that Eddington uses as illustration of physical quantities which "should be defined according to the way in which we recognize them when actually confronted with them," terms which no dualistic realist would use to designate ontologically existing material objects.

Dewey later quotes Eddington

> Mr. Eddington has said that "The whole of our physical knowledge is based on measures," and that "whenever we state the properties of a body in terms of physical quantities, we are imparting the responses of various metrical indicators to its presence, *and nothing more.*"[92]

Of Eddington, Dewey further says

> His graphic illustration of the physical formulation of what happens when an elephant slides downhill comes to mind. The mass of the elephant is the reading of a pointer on a weighing scale; the slope of the hill, the reading of a plumb-line against the divisions of a protractor; bulk, a series of readings on the scale of a pair of calipers; colour, readings of a photometer for light; the duration of the slide, a series of readings on a watch dial, etc.[93]

But Dewey fully recognizes that Eddington does not mean to say that the metaphysical character of objects is nothing more than the readings. Although Eddington, as Dewey says, holds that, "a knowledge of all possible responses of a concrete thing as measured by suitable devices 'would completely determine *its relation to its environment*' "[94] yet Dewey in a puzzled way deplores the fact that Eddington "feels called upon to reclothe these scientific measured relations with qualities as something which 'mind' mysteriously introduced!"[95]

In connection with the quotation from Bridgman, given above, and the first quotation from Eddington which followed it, Dewey makes reference to Peirce in a footnote.

> Peirce states that the sole meaning of the idea of an object consists of the consequences which result when the object is acted upon in a particular way.[96]

This was by no means what Peirce said. In a number of different contexts referred to in my introduction in the discussion of pragmatism, Peirce said that the meaning of an object is the sum total of *all possible* effects of the object in *all possible* experience,—quite a different matter! Dewey adds immediately after the sentence quoted above, "the principle is one element in the pragmatism of James," thus making it evident that in 1930 he did not realize what Peirce's pragmatism was intended to be, or that Peirce had repudiated James's version of it.

Dewey concludes the footnote just referred to with the words, "On account of ambiguities in the notion of pragmatism—although its logical import is identical—I follow Bridgman in speaking of 'operational thinking'."

These quotations from or references to Bridgman, Eddington, and Peirce, are evidently intended to prove Dewey's point, both affirmatively and negatively. All three statements are in favor of his affirmation, which is indeed a valuable point of emphasis, namely that reflective thinking ought to give a large place to experimental processes. However, not one of the three agrees with Dewey's negatives. Peirce was an idealist, and also a strong believer in the *a priori* validity of the laws of formal logic. Both Eddington and

Bridgman believe in the ontologically prior reality of objects to be manipulated by scientific processes.

Bridgman, in the context of the material quoted by Dewey, makes it perfectly clear that he recognizes *"fact"* which, he says, "has always been for the physicist the one ultimate thing from which there is no appeal, and in the face of which the only possible attitude is a humility almost religious," as a kind of prior existence implying "the possibility of new experience beyond our present range."[97]

This fact is made abundantly clear in Bridgman's comment on the absolute time assumed by Newton. Bridgman says

> Now there is no assurance whatever that there exists in nature anything with properties like those assumed in the definition [Newton's definition of absolute time]; and physics, when reduced to concepts of this character, becomes as purely an abstract science and as far removed from reality as the abstract geometry of the mathematicians, built on postulates. It is a task for experiment to discover whether concepts so defined correspond to anything in nature, and we must always be prepared to find that the concepts correspond to nothing or only partially correspond. In particular, if we examine the definition of absolute time in the light of experiment, we find nothing in nature with such properties.[98]

It should be noted here that Bridgman believes in the existing things, ontological material objects, or ontological relationships, which the experimenter may "discover" and which may "correspond" as a whole, in part, or not at all, with "concepts." It should be clear that when Bridgman says "the concept *is* synonymous with the corresponding set of operations," he is not by any means eliminating ontological objects to which the concepts may or may not correspond. His entire doctrine on this subject is quite acceptable to any dualistic realist. Dewey erroneously assumed that "operational thinking" in Bridgman's vocabulary designates a type of thinking in which prior ontological existents are ruled out.

As a matter of fact, Bridgman has not read his Newton very carefully. He speaks as though Newton had no knowledge whatever of operational thinking. Bridgman assumes that Newton had no thought of subjecting his absolute to experimentation. However, in the last paragraph of the Scholium which concludes the introductory "Definitions" with which Newton's *Principia* begins, Newton suggests that absolute time and absolute space might be experimentally discovered by operations performed upon two revolving globes. He suggests calculations upon the tension and motion of such globes which lead to an experimental knowledge of all the forces bearing upon them from the outside universe. It is implied in these suggestions that an elaborate calculation of all such forces might lead to a formula indicating the total force playing upon such position. From this the absolute motion of the globes might be discovered, and from absolute motion, absolute time and absolute space might be deduced.

It is evident that Newton's notion of his three physical absolutes was a notion of total relativity which might conceivably be experimentally determined.

However, it is very plain that Newton regards the possibility of obtaining a formula for such total relativity as quite remote, for he says in the same Scholium, "It may be that there is no such thing as an equable motion, whereby time may be accurately measured. All motion may be accelerated and retarded . . ." Again he remarks, "for it may be that there is no body really at rest, to which the places and motions of others may be referred."

It is true that Newton believed in the theoretical existence of "real quantities" conceived as portions of absolute space, time and motion but when it is remembered that for him the absolutes were the totals of relatives, it becomes apparent that his "real quantities" are not contrary to operational thinking. In fact, the next to the last paragraphs in the Scholium referred to, with a mere shift of emphasis and vocabulary, seems quite consistent with all that Bridgman has to say on the subject.

> Wherefore relative quantities are not the quantities themselves, whose names they bear, but those sensible measures of them (either accurate or inaccurate), which are commonly used instead of the measured quantities themselves. And if the meaning of words is to be determined by their use, then by the names time, space, place, and motion, their [sensible]

> measures are properly to be understood; and the expression will be unusual, and purely mathematical, if the measured quantities themselves are meant. On this account, those violate the accuracy of language, which ought to be kept precise, who interpret these words for the measured quantities. Nor do those less defile the purity of mathematical and philosophical truths, who confound real quantities with their relations and sensible measures.[99]

It is obvious that Dewey, in his references to Peirce cited above, is groping for a term to take the place of pragmatism. At this point in his argument he introduces the words, "experimental empiricism" explaining that

> The phrase ... sounds redundant. It ought to be so in fact, since the adjective and the noun should have the same significance, so that nothing is gained by using the two terms. But historically such is not the case. For historically empirical philosophies have been framed in terms of sensations or sense data. ... These doctrines have always evoked an abundance of criticisms. But the criticisms have taken the form of depreciating the capacity of "experience" to provide the source and test of our fundamentally important ideas in either knowledge or morals. They [the criticisms] have used the weaknesses of sensational empiricism to reinforce the notion that ideas are framed by reason apart from any experience whatsoever; to support what is known in the vocabulary of philosophical systems as an *a priori* rationalism.[100]

Attention has been called to the fact that Dewey uses the words empirical or empiricism in three distinct ways. (1) Empirical may refer to the random processes of unscientific experience. (2) Sensationalistic empiricism may be referred to. (3) Dewey's own philosophy he frequently designates as a system of empiricism but here he carefully distinguishes it by the additional adjective, "experimental".

With reference to his theory of knowledge, Dewey continues

> From the standpoint of the operational definition and tests of ideas, ideas have an empirical origin and status. But it is that of *acts* performed, acts in the literal and existential sense

> of the word, deeds done, not reception of sensations forced on us from without. Sensory qualities are important. But they are intellectually significant only as consequences of acts intentionally performed.[101]

Here is a typical Dewey exaggeration. He does not mean that sensory qualities are significant "only" as consequences of acts intentionally performed. That would give him no chance to run for cover in case his picnic were suddenly overtaken by an unexpected thunderstorm. Nevertheless, he uses these extreme terms, here, and almost the same words on the following pages and repeatedly throughout his later writings.

Dewey exults over the fact that now

> for the first time there is made possible an empirical theory of ideas *free* from the burdens imposed alike by sensationalism and *a priori* rationalism. This accomplishment [Dewey's] is, if I may be bold to say, one of three or four outstanding feats of intellectual history.[102]

One wonders who were the other two or three. Would Aristotle have a place? It would seem that Mrs. Eddy would certainly have to be included according to Dewey's very similar views, for she said, "There is no matter" before Dewey did, and between saying, "All is mind", and "All is process", there would not seem to be much to choose.

Dewey concludes this self-extolling paragraph with the words, ". . . by emancipation of thinking from the necessity of testing its conclusions solely by reference to antecedent existence it [Dewey's philosophy] makes clear the originative possibilities of thinking."[103]

Note that the words "solely by" if taken literally would render the sentence completely meaningless, for no one has ever held such a notion. Substitute the words "not without" and Dewey's meaning would be more clear,—he glories in the emancipation of thinking from the necessity of testing its conclusions by reference to antecedent existence.

Dewey's treatment of Newton's philosophical references seems thoroughly unjustifiable, but one can understand how from Dewey's point of view, he believes that he has correctly represented him.

Dewey feels that John Locke in his sensationalistic empiricism was really building upon "his illustrious contemporary, Sir Isaac Newton". Newton, says Dewey, "was convinced of the unsoundness of the rationalistic philosophy of science represented by Descartes." Newton strongly emphasized the point that he was thoroughly empirical in premises, method and conclusions; empirical in that he had gone to his senses and taken what he found there as the origin and justification of his primary scientific ideas about nature.[104]

Dewey says

> No saying of Newton's is more widely known than that "I do not invent hypotheses." This is only his negative way of asserting complete reliance upon a subject-matter guaranteed by the senses—which in turn signifies, as we have just said, that all scientific ideas go *back* to sense-perceptions previously had for both their origin and their warrant.[105]

Now, in its context, Newton's words *"hypotheses non fingo"* do not mean that he was opposed to drawing inferences beyond the reach of immediate sensations. The material which Dewey himself quotes in the context makes this very plain. From limited observations, Newton was very ready to draw probable universal conclusions. He was not using the word "hypothesis" in our modern scientific sense of the term. It would be more correct in our terminology to render his words by a paraphrase, "I do not indulge in speculation without a reasonable basis in observed data."

In the context, moreover, the phrase is limited to a specific situation. That Dewey had not read the phrase in its context is perfectly clear from the following statement by Cajori:[106]

> In the first place, it should be noted that Newton does not advance *"hypotheses non fingo"* as a general proposition, applying to all his scientific endeavor; it is used by him in connection with a public statement relating to that special, that difficult and subtle subject, the real nature of gravitation, which was mysterious then and has remained so to our day. Moreover, this *"hypotheses non fingo"* is to be taken, not as his private practice, nor his individual habit of thought, but as the position which he took in public print, on the

> occasion of placing before the scientific world the positive results of his mathematical thinking, which were primarily based on observation and experimentation. Newton's "*hypotheses non fingo*" disrupted from its context is a complete misrepresentation of Newton.[107]

Cajori, in the five pages following the above quotation, amasses a wealth of information in regard to Newton's use of hypotheses. Newton was opposed to all hypotheses which had no basis in experimental data. He was not at all opposed to rather tenuous hypotheses in the process of investigation. He was opposed to all but well substantiated hypotheses thoroughly based upon data in the publication of his scientific conclusions.

Comparing Newton and Descartes Dewey says

> While Newton employed mathematical conceptions with a freedom equal to that of Descartes and with a heuristic power far exceeding Descartes, he differentiated his own method from that of the latter by insisting that the objects to which his mathematical calculations applied were not products of thought, but were given as far as the properties which figured in his science were concerned, in sense. That is, he did not claim that he could sensibly observe the ultimate particles or atoms which were the foundation of his system, but he did claim that he had sensible grounds for assuming their existence, and especially he insisted that all the properties with which his scientific theory endowed these particles were derived from and were verifiable in direct sense-perception.[108]

It seems to be implied in these words that Descartes regarded the object to which his mathematical calculations applied, as "products of thought", but this is certainly not the case. Though Descartes did hold to a kind of rationalistic view, yet it was in the sense that he believed that by clear thinking he could discover reality apart from empirical data. This is not rationalism as defined, *ratio est causa essendi,* but it is very close; it is the theory that *ratio est causa cognoscendi.*

Dewey endeavors to make out that Newton in his theory of atoms departed from his empirical principles. However, the material which Dewey directly quotes, as well as the fuller context in Newton's writings, abundantly shows that Newton believed that observation in experience could reasonably be extended by inference to that which is entirely beyond experience. This is clearly brought out in Rule III of Newton's "Rules of Reasoning in Philosophy" which is the introduction to Book III in the *Principia.* The Rule is

> *The qualities of bodies, which admit neither intensification nor remission of degrees, and which are found to belong to all bodies within the reach of our experiments, are to be esteemed the universal qualities of all bodies whatsoever.*

Newton explains

> We no other way know the extension of bodies than by our senses, nor do these reach it in all bodies; but because we perceive extension in all that are sensible, therefore, we ascribe it universally to all others also. That abundance of bodies are hard, we learn by experience; and because the hardness of the whole arises from the hardness of the parts, we, therefore, justly infer the hardness of the undivided particles not only of the bodies we feel but of all others. . . . Moreover, that the divided but contiguous particles of bodies may be separated from one another, is matter of observation; and, in the particles that remain undivided, our minds are able to distinguish yet lesser parts, as is mathematically demonstrated. But whether the parts so distinguished, and not yet divided, may, by the powers of Nature, be actually divided and separated from one another, we cannot certainly determine. Yet, had we the proof of but one experiment[109] that any undivided particle, in breaking a hard and solid body, suffered a division, we might by virtue of this rule conclude that the undivided as well as the divided particles may be divided and actually separated to infinity.[110]

Clearly Newton's theory of the infinitesimal division of matter was as truly empirical as his theory of any aspect of astronomy. As against the consistency of Newton's empiricism, Dewey says

> What would happen if some raised the objection that the existence of the ultimate particles is hypothetical, since they are not observed? What becomes of his empiricism even if

> the properties ascribed to particles are all sensibly verified, provided the bearers of these properties are not observed? It can hardly be said that Newton explicitly discusses this question. It seemed to him practically self-evident that since sensible bodies were divisible without losing the properties that form his "principles"; we are entitled to assume the existence of certain last particles of the same kind incapable of further division. And while, in logical consistency, he could hardly have admitted the argument, the fact that he found that he could "explain" actual occurrences on the basis of this assumption seemed to give him ample confirmation of their existence.[111]

With regard to these words of Dewey, it should be remarked (1) that neither Newton nor any other empiricist claims that all things to which reasonable inference can be made are immediately within sensory observation. (2) The material which I have just quoted directly from Newton makes it clear that Newton would *not* regard it as self-evident that *since* material bodies are divisible without losing their properties, *therefore* last particles are *incapable* of further division.

Dewey continues his attack upon a man of straw

> Perhaps in the following passage he [Newton] comes as near as anywhere to dealing explicitly with the point. After saying that if *all* particles, all bodies whatever, were capable of being broken, they would then wear away, he goes on to say that in that case the "nature of things depending on them would be changed", and adds "and, therefore, that *nature may be lasting,* the changes of corporeal things are to be placed only in the various separations and new associations and motions of these permanent particles." "So that nature may be lasting!" It would be hard to find a franker statement of the motive which controlled Newton's doctrine. There was needed some guarantee that Nature would not go to pieces and be dissipated or revert to chaos.[112]

The writer is unable to identify the passage to which Dewey is here referring. In the last passage above quoted from Newton, he flatly contradicts what Dewey here says he teaches. It is rather typical of Dewey to omit references, thus failing to enable the student to check up on quotations in their context, especially when the author quoted is being criticised. When Dewey directly quotes Bridgman (supposedly in support of his own views) on page 107 of his *Quest for Certainty,* he gives an accurate page reference. But in all of his quotations from and allusions to Newton throughout a number of pages in the same book, he gives not one reference which would enable the student to find the material quoted or alluded to. It has been demonstrated above that Dewey himself had not read the context of the phrase, "I do not make hypotheses", to which he devotes nearly a page of sharp and irrelevant criticism. There is a strange lacuna between Dewey's comments and his sources.

However, taking at its face value material which Dewey quotes or summarizes from Newton in the last above quoted block from the *Quest for Certainty,* it is only fair to say that the words "so that nature may be lasting" so sarcastically repeated by Dewey, do not necessarily imply a *motive* in Newton's mind. Surely Newton did not think that he had created the world! The words merely indicate a teleology which Newton believed he had *observed.* Nature is, indeed, enduring, as judged by empirical criteria. This being the *prima facie data,* Newton was (if Dewey's quotation were correct) only stating what he considered a probable inference, in giving the opinion that the indivisible atoms are unbreakable. Our modern view of the atom as by no means unbreakable would prove that Newton's inference was incorrect, but it would prove that his process of reasoning was other than empirical.

Dewey proceeds to substitute for the alleged idea of Newton's that the atoms are "unbreakable", such words as "unchangeable" or "immutable". Now, it is clear that in Newton's day, and for some time thereafter, the atoms were regarded by some as indivisible particles. But knowing, as Dewey does, that Newton was essentially concerned with dynamics, and that Newton regarded many of the attributes of matter as changeable, and that only certain attributes such as extension and mass are regarded as permanent, for Dewey to change "unbreakable" (if Newton said it) to immutable, and charge Newton with regarding the atoms as immutable, and then to build upon such a charge, as Dewey does, is naught but an act of intellectual violence.

Apart from the discussion of the philosophy of scientists, the remainder of the chapter on "Ideas at Work" is taken up with an elaboration of Dewey's own views. The following passages are significant.

> "Real" things may be as transitory as you please or as lasting in time as you please; these are specific differences like that between a flash of lightning and the history of a mountain range. In any case they are for knowledge "events", not substances.[113]
>
> Idealistic philosophies have not been wrong in attaching vast importance and power to ideas. But in isolating their function and their test from action, they failed to grasp the point and place where ideas have a constructive office. A genuine idealism [Sic!] and one compatible with science will emerge as soon as philosophy accepts the teaching of science that ideas are statements not of what is or has been but of acts to be performed.[114]

It is unusual to find Dewey, since the 1890's, acknowledging himself as an idealist. Nevertheless, in 1930 here he speaks favorably of "a genuine idealism and one compatible with science."

It should be quite apparent to the reader that so far as his chapter "Ideas at Work" is concerned, Dewey has failed to establish his thesis that the "traditional assumptions" of objective data prior to the process of inquiry "have been abandoned in concrete scientific procedure."

Dewey's chapter entitled "The Play of Ideas" is, indeed, quite congenial material for non-rationalistic, realistic dualism. All of his arguments, the chief of which are discussed below, seem to contribute rather to the destruction of his own anti-dualistic instrumentalism, and to the upbuilding of dualism.

As to Dewey's handling of outstanding writers in the history of science, the following points are typical:

Dewey declares that "Descartes defined natural existence as extension . . ."[115] This statement would be justifiable if Descartes had employed the term *extensio,* to designate "natural existence", but it is a well known fact that Descartes did nothing of the kind. Descartes does teach that extension is the "principal attribute" of bodies (Prin. of Philos. I, 53, II Passim). He even argues that there can be no such thing as empty space, i.e. space not completely filled with extended substance (Prin. of Philos. II, 16); but he never taught that body and extension are equivalent, nor *"defined"* natural existence as extension. His term was *res extensa,* a very different matter. Descartes, a dualist, believed that material nature is made up of *things which* are *extended*. It is Dewey, an anti-dualist, and not Descartes, who defines natural existence as "extension."

After having endeavored in vain in the previous chapter to prove that Newton inadvertently deserted empirical method in his doctrine of the atom, Dewey proceeds to the next degree of inflation, declaring that Newton "frankly deserted the empirical method he professed to use in respect to the properties of the ultimate fixed substance,"[116] and Newton is said to have done this "while professing empiricism".[117] Material presented above reveals that this is a case of poor analysis on Dewey's part.

Again Dewey says

> Definition of space, time and motion from "the relation they bear to sense" is according to him [Newton] "a vulgar prejudice."[118]

Now as a matter of fact, Newton said, as quoted above in another connection, ". . . if the meaning of words is to be determined by their use, then by the names time, space, place and motion, their [sensible] measures are properly to be understood . . ."[119]

Dewey continues his attack upon Newton

> Absolute space, time and motion, were . . . the immutable frame within which all particular phenomena take place . . . The sole ground of assurance that ultimate hard and massy particles persist without internal change, that all changes are merely matters of their external "separations and associations", was the existence of something empty and fixed within which the latter occur.[120]

It has been shown that, according to the unidentified quotations from Newton presented by Dewey in his previous chapter, the ground for the assumption of indivisible atoms, was the enduring character of material nature as observed. Dewey presents no evidence, and there is no evidence, to show that Newton grounded any theory of the indivisibility of atoms upon his theory of absolute space. That Newton saw no logical implication between the theory of absolute space and any theory of the indivisibility of atoms, is made evident from his statement quoted above, that we may "conclude that the undivided as well as the divided particles may be divided and actually separated to infinity."[121]

Continuing his attack upon Newton, Dewey brings Einstein, supposedly, to his assistance. He says

> Newton, because of his assumption of absolute time, assumed that the measurement of simultaneity had precise meaning for events not occurring within the same observed field. Einstein saw that this assumption was the Achilles heel of the entire scheme. He demanded an experimental method of determining simultaneity—without which events cannot be dated with respect to one another. . . . He suggested an arrangement by which two flashes of light, not in themselves capable of inclusion in one region of observation, be reflected to a mirror placed midway between the origin of the two flashes. They are simultaneous if they are then included within one and the same act of observation. . . . It signified, in connection with the fact regarding the constancy of velocity of light, that events occurring at different times according to two watches keeping exactly the same time, placed at the points of the origin of the flashes, may be simultaneous [at the mirror]. In scientific content, this was equivalent to doing away with Newton's absolute; it was the source of the doctrine of restricted relativity.[122]

It is difficult to see how Dewey can secure any aid and comfort from Einstein. True, Einstein rejected Newton's absolutes, but he plainly said

> Just as it was necessary from the Newtonian standpoint to make both the statements, *tempus est absolutum, spatium*

> *est absolutum,* so, from the standpoint of the special theory of relativity we must say, *continuum spatii et temporis est absolutum.* In this latter statement *absolutum* means not only "physically real," but also "independent in its physical properties having a physical effect, but not itself influenced by physical conditions."[123]

Again Einstein says

> There is no absolute (independent of the space of reference) relation in space, and no absolute relation in time between two events, but there is an absolute (independent of the space of reference) relation in space and time, as will appear in the sequel.[124]

Still earlier in his explanation he says

> The theory of relativity is often criticized for giving, without justification, a central theoretical role to the propagation of light, in that it founds the concept of time upon the law of propagation of light. The situation, however, is somewhat as follows. In order to give physical significance to the concept of time, processes of some kind are required which enable relations to be established between different places. It is immaterial what kind of processes one chooses for such a definition of time. It is advantageous, however, for the theory to choose only those processes concerning which we know something certain. This holds for the propagation of light *in vacuo* in a higher degree than for any other process which could be considered, thanks to the investigations of Maxwell and H. A. Lorentz.
>
> From all of these considerations, space and time data have a physically real, and not a mere fictitious, significance. . . . There is, therefore, sense in asking whether those equations are true or not, as well as in asking what the true equations of transformation are by which we pass from one inertial system K to another, K^1 moving relatively to it. It may be shown that this is uniquely settled by means of the principle of the constancy of the velocity of light and the principle of special relativity. [Einstein then develops an interesting equa-

> tion, and continues]. . .This equation formulates the principle of the constancy of the velocity of light relatively to *K*. It must hold whatever may be the motion of the source which emits the ray of light.[125]

From the philosophical point of view, it should be perfectly apparent that Einstein has by no means repudiated the significance of Newton's absolutes. He has refined the conceptions of the absolutes to the *n*th degree. Furthermore, he has based his calculations upon the assumption of the absolute invariability of a prior existing material phenomenon, the speed of light in a vacuum, which he assumes to be invariable. If Mr. Dewey wished to *avoid* prior ontological absolutes, he should have kept as far as possible from Mr. Einstein!

Dewey once refers to "the detection . . . of the logical looseness of the Euclidean postulate regarding parallels . . . ",[126] indicating that he has superficially accepted the popular misconception of relativity with reference to Euclid. Einstein is the first to say that there is no logical looseness in Euclid as such. In discussing pre-relativity physics he says

> To sum up, we can say that in the Euclidean geometry there are (in a given space of reference) preferred systems of co-ordinates, the Cartesian systems, which transform into each other by linear orthogonal transformations. The distance *s* between two points of our space of reference, measured by a measuring rod, is expressed in such co-ordinates in a particularly simple manner. The whole of geometry may be founded upon this conception of distance.[127]

His criticism of Euclidean geometry is distinctly *not* that it includes any logical looseness, but merely that it *does not include* the actual measurement of relatively rigid or flexible physical bodies as they occur in physical experience. Referring to Euclid as "that which is *purely logical,*" he continues

> One is ordinarily accustomed to study geometry divorced from any relation between its concepts and experience. There are advantages in isolating that which is purely logical and independent of what is, in principle, incomplete empiricism.

> This is satisfactory to the pure mathematician. He is satisfied if he can deduce his theorems from axioms correctly, that is, without errors of logic. The questions as to whether Euclidean geometry is true [to material experience] or not does not concern him. But for our purpose it is necessary to associate the fundamental concepts of geometry with natural objects...[128]

Dewey concludes his discussion of Einstein

> In respect to the special theme of the nature of mathematico-physical conceptions, the pertinent conclusion is evident. For the conclusion of Einstein, in eliminating absolute space, time and motion as physical existences, does away with the doctrine that statements of space, time and motion as they appear in physics concern inherent properties . . .[129]

Dewey does not realize that Einstein has substituted the invariable motion of the speed of light in a vacuum in space-time for the Newtonian absolutes which, as Newton viewed the situation, were mere mental constructions. Einstein's invariable speed of light is definitely an "inherent property" in physics, such as the Newtonian absolutes never were claimed to be.

After having "disposed of" Newton and his ontological world of material things, Dewey pursues his attack upon sensationalism in seventeen pages of most fascinating discussion of rational, symbolical, and mechanical ideas. The reader may wish to refer at this point to the epistemological categories suggested by the writer as an amplification of Tennant's epistemological categories discussed in Chapter Two of this thesis.[130] Nothing could be stronger than the words of Dewey's complete capitulation, in the passage now under discussion, to the ontological *prior* status of the rational possibilities of mathematics, logic and mechanics. It will be observed that this passage is in complete contradiction to Dewey's usual views.

Perhaps a high point in his unconscious surrender is found in the following passage

> The ideal relationship of means to ends exists as a formal possibility determined by the nature of the case even though it be not thought of, much less realized in fact. It subsists as a possibility, and as a possibility it is in its formal structure

> necessary. That is to say, the conditions which have to be met and fulfilled in the idea of a machine having an efficiency of one hundred percent, are set by the necessities of the case; they do not alter with defects in our apprehension of them. Hence essences may be regarded as having Being independent of and logically prior to our thought of them [Sic!].[131]

If this is the high point in Dewey's recognition of the *a priori* necessity of rational principle, it is by no means an isolated passage, for he says

> Products of intentional operations are objectively real and are valid if they meet the conditions involved in the intent for the sake of which they are constructed.[132]
>
> For unless we can have ends-in-view without experiencing them in concrete fact no regulation of action is possible.[133]
>
> What is wanted is to indicate that once the idea of possible operations, indicated by symbols and performed only by means of symbols, is discovered, the road is opened to operations of ever increasing definiteness and comprehensiveness.[134]
>
> Mathematical space is not a kind of space distinct from so-called physical and empirical space, but is a name given to operations ideally or formally *possible* with respect to things having spacious quality. ... The distinction between physical and mathematical conception may be brought out by noting an ambiguity in the term "possible" operations. Its primary meaning is *actually,* existentially, *possible.* Any idea as such designates an operation that *may* be performed, not something in actual existence. ... Mathematical ideas are designations of *possible operations* in another and secondary sense, previously expressed in speaking of the *possibility* of symbolic operations with respect *to one another.*[135]... "Non-incompatibility" indicates that all developments are welcome as long as they do not conflict with one another, or as long as restatement of an operation prevents actual conflict.[136]
>
> The history of science is full of illustrations of cases in which mathematical ideas for which no physical application was known suggested in time new existential relations.[137]
>
> ... *being* a telephone or a cutting tool is a self-identical

> universal, irrespective of the multiplicity of special objects which manifest the function.
>
> The relation is thus invariant. It is eternal . . . independent of the instances in which it is overtly exemplified, . . . its meaning is found only in the *possibility* of these actualizations.[138]

That Dewey is quite unconscious of the implications of these admissions, is evident from the following passages:

> The fact that there are certain formal conditions [called "logical forms" in the immediate context] of the validity of inference has been used as the ultimate warrant of a realm of invariant Being.[139]

To this, Dewey objects, and yet he himself describes these logical forms as antecedent, invariant being, in the passages cited above.

He makes slighting remarks on "that idolatrous attitude toward universals so often recurring in the history of thought."[140] And yet he says,[141] as I have shown, that the operation of "being a telephone or a cutting tool is a self-identical universal . . . invariant . . . eternal . . . independent of . . . instances . . ."!

Again, he objects to "hypostatizing the objects of thought into a realm of transcendent Being."[142]

> Scientific conceptions are not a revelation of prior and independent reality. . . . But even more obviously than the rationalism it has opposed, [sensationalistic] empiricism has connected the origin, content and measure of validity of general ideas with antecedent existence.[143]
>
> They [ideas] are not . . . *a priori* categories imposed on sense in a wholesale, once-for-all way, prior to experience so as to make it possible. . . . Idealism is . . . not abstractly rational . . . There is no predestined course they [ideas] must follow. . . . experimental practice of knowing . . . eliminates the age-old separation of theory and practice. . . . There are no sensory or perceived objects fixed in themselves.[144]

Dewey is still committed to the denial of ontologically existing material objects and rational laws prior to experience, but his chapter on "The Play of Ideas" has not effectively defended his position.

The chapter entitled "The Seat of Intellectual Authority" is still within Dewey's general division in which he endeavors to show that modern scientific procedure has abandoned traditional assumptions of prior existences and laws. Although the bulk of the chapter is constructive, showing the true and genuine value of experimental thinking, there is still abundant evidence of Dewey's *a priori* negations. He says that the object of knowledge is "eventual,"

> . . . an outcome of directed experimental operations, instead of something in sufficient existence before the act of knowing.[145]

One scarcely knows the significance of the word "sufficient" in this sentence. Perhaps it is a typographical error for "significant." In any case, the object of knowledge is declared to be not in existence before the act of knowing. Again, he says

> . . . we have seen, progress beyond the Newtonian scheme was made possible when the ascription of antecedently existing inherent properties was dropped out,. . .[146]

Scientific conceptions are declared not to be "revelations of antecedent properties of real Being and existence . . ."[147]

The chapter is noteworthy for one brief mention of phenomenalism of the dualistic type supported by Tennant. Dewey refers to "phenomenalism, which holds that impressions and ideas come between the knower and the things to be known . . ."[148] This is the only case in which I have found the term phenomenalism used dualistically as Tennant uses it, outside of Tennant's own writings. *The Quest for Certainty* is made up of Dewey's Gifford Lectures delivered in 1929. It was published in 1930, the year in which the second volume of Tennant's *Philosophical Theology,* setting forth his "phenomenalism" was published. It is not impossible that Dewey, in Great Britain, ran across Tennant's usage of the term. He makes no reference to Tennant, however, and devotes only six lines to the subject. I am unable to discover throughout this volume of Dewey's any trace or reflection of the more familiar type of phenomenalism or phenomenology and this is the more surprising, since Dewey's own philosophy bears a striking resemblance thereto.

Another terminological peculiarity is worthy of note. Dewey says

> Taking what is already known or pointing to it is no more a case of knowledge than taking a chisel out of a tool-box is the making of the tool.[149]

Certainly this violates good English usage. "What is already known" is properly called "knowledge." Dewey insists, however, that when a doctor enters a sick room it is incorrect to say that "perception of the patient is a case of knowledge."[150] In the previous chapter he had said

> Only the peculiar hypnotic effect exercised by exclusive preoccupation with knowledge could have led thinkers to identify experience with reception of sensations, when five minutes' observation of a child would have disclosed that sensations count only as stimuli and registers of motor activity expended in doing things.[151]

Tennant is obviously much closer to the center of ordinary usage in regarding the "so-called knowledge of so-called objects by so-called subjects," as a primitive element in his epistemology.

Dewey states in regard to "The Seat of Intellectual Authority"

> The three chief contending doctrines in this field are sensational empiricism, rationalism and Kantianism . . .[152]

Dewey says

> As soon as and whenever it is assumed that the office of knowledge is to lay hold of existence which is prior to and apart from the operations of inquiry and their consequences, one or other of these errors [errors of sensationalism or rationalism] or some combination of both of them is inevitable.[153]

Kant recognized the unity of perception and conception, but the difference between Kant's view and the view of Dewey is said to lie in the fact that

> . . . according to the latter, the distinction of sense and thought occurs *within* the process of reflective inquiry, and the two are connected together by means of operations overtly performed. In the Kantian scheme, the two originally exist in independence of each other, and their connection is established by operations . . .[154]

Dewey is of course quite correct in criticizing Kant's view as holding that the distinction and connection between sensation and conception

> . . . have nothing to do with the validity of any particular enterprise of knowing. Illusion and error exemplify the synthesis of sense and understanding quite as much as does the soundest instance of scientific discovery. . . . In Kant's scheme the blessings of the categories descend upon the material of sense without reference to making a distinction between the true and the false.[155]

Dewey makes no reference to the type of realistic dualism which does not regard noumena as inscrutable, but which emphasizes the value of scientific experimental processes in coming to a probable knowledge of ontological facts.

Dewey concludes this portion of his argument, and introduces the next step in the development of his chapter with the words

> These theories [sensationalism, rationalism, Kantianism, and the like] differ widely among themselves; they are irreconcilable with one another. But they all have one premise in common. They all assume that the conclusions of reflective inference must be capable of reduction to things already known if they are to be proved.[156]

Dewey cites Mill's logic as an example of appeal to prior knowledge for the verification of all new knowing processes. This is a different charge from that of appeal to ontologically existing facts or mathematical or logical principle. Dewey is quite sound in his objection to the appeal of Mill and others to self-evident truths. He shows effectively that truths alleged to be self-evident are usually "what Bentham calls *ipse dixitism*" or "arbitrary dogmatism." But is he justified in objecting to the principle of appeal to prior knowledge, on the ground that such appeal is frequently stated in terms of appeal to the self-evident? He argues

> The recent crisis in physical science is a case in point. The experimental discovery that the velocity of light remains the same when measured either with or against the direction of the earth's movement was totally unaccountable on the basis of previous knowing. But scientific men accepted the

> *consequences* of their experimental operations as constituting the known object, rather than feeling under obligation to "prove" them by identification with what was said to be antecedently known.[157]

As a matter of fact, the famous experiments with the speed of light conducted by physicists in recent years, have all assumed and appealed to a vast amount of accumulated knowledge. Such experiments deliberately isolate unknown factors, to be checked against such accumulated knowledge. Had there not been such appeal to past knowledge, no experiment and no devising of experimental methods would have been possible under any circumstances.

Indeed, Dewey himself at times recognizes this fact and describes it effectively. He merely fails to discriminate between appeal to supposed self-evident truths on the one hand, and appeal, on the other hand, to accumulated knowledge of the past, —all of which is subject to correction, but the general bulk of which must be assumed in order that any progress may be made.

It is here suggested that the integrationism outlined in Chapter II of this thesis in connection with the discussion of Tennant's epistemology, offers a better and more systematic analysis of the process of verification than Dewey's mere experimentalism with its confused denial of prior existents and prior rational principles. Integrationism recognizes no self-evident truths as such, but takes the principle of dynamic integration as the most fruitful and the most probably valid criterion of judgment. Integrationism recognizes that all reasoning processes make assumptions, that any assumption may be questioned, but that all such processes must move from a relatively probably known, through the process of integration, to the assimilation of the hitherto unknown and the verification of correction of what was previously assumed.

Integrationism differs from Dewey's experimentalism in its elimination of certain of Dewey's negative *a priori* elements: (1) The possibility of discovering prior ontologically existing material objects is not denied *a priori*. (2) The possibility of discovering mathematical, logical and mechanical laws in the form of empty possibilities and impossibilities, laws and principles not produced by, but uncovered in, the inquiry process, is not denied *a priori*.

Thus, according to integrationism, the inquiry process does not necessarily produce its objects and its rational laws, though it may produce some of its objects and manufacture some of its laws. None of the fruitfulness of constructive experimentalism is in any way eliminated or interfered with, but on the other hand, a far wider field of possible fruitfulness is opened up by the elimination of the *a priori* negatives above enumerated.

In the practice of integrationism, therefore, appeal to prior knowledge for verification of newly acquired knowledge of the hitherto unknown, is a necessary principle. The newly acquired knowledge of the hitherto unknown is assimilated to and integrated with the prior knowledge by the process of correction or verification thereof, but not by any process of appeal to any assumed absolute knowledge of self-evident truths.

It should be concluded, then, that the chapter on "The Seat of Intellectual Authority" contributes not in the least to Dewey's thesis that modern scientific methods have abandoned the notion of prior existences, but, nevertheless, the chapter as a whole is constructive and useful in its emphasis upon the value of the experimental process of knowing.

One more step in the attempted demonstration that "concrete scientific procedure" has "abandoned" the notion "that the processes of search, investigation, reflection, involved in knowledge relate to something having prior being,"[158] is taken in the early stages in the chapter entitled "The Naturalization of Intelligence." Dewey appeals to the Heisenberg principle of indeterminacy as explained by Eddington[159] in the Gifford Lectures delivered two years earlier. Of the Newtonian view of position and velocity in the material world, according to "the principle of canonic conjugates" Dewey says

> The philosophy in question assumed that these positions and velocities are there in nature independent of our knowing, of our experiments and observations, and that we have scientific knowledge in the degree in which we ascertain them exactly.[160]

Of such "doctrines which have dominated thought," Dewey says

> . . . these all rest on the notion that a reality in Being independently of the operations of inquiry, is the standard and measure of anything said to be known.[161]

Such doctrine he further characterizes

> That which acts outside of nature and is a mere spectator of it is, by definition, not a participator in its changes. Therefore, it is debarred from taking part in directing them. . . . We may, indeed, engage during knowing in the experimentation. But according to the classic logic the effect was not to reorganize prior conditions, but merely to bring about a change in our own subjective or mental attitude. The act no more entered into the constitution of the known object than traveling to Athens to see the Parthenon had any effect on architecture.[162]

But Dewey forgets that the "classic logic" was produced by the same culture which *built* the Parthenon!

As to his spectator being "by definition not a participator" this is because he has inserted "mere" before the word "spectator" in his definition. Thus his "definition" applies only to the man of straw which he has set up. Historical human life has not partaken of the artificialities of the athletic field. The spectator is by no means excluded from being also a participator.[163]

In his characterization of the older scientific method for purposes of contrast with the Heisenberg principle quoted above, Dewey is persistently unfair to Newton. He says

> The older doctrine was in effect an offshoot not of science but of a metaphysical doctrine which taught that the immutable is the truly real, and of a theory of knowledge which held that rational conceptions rather than observations are the vehicle of knowledge. Newton foisted a fundamental "rationalism" upon the scientific world all the more effectually because he did it in the name of empirical observation.[164]

With the above statement Dewey connects "Spinoza's magnificently sweeping dictum that 'the order and connection of ideas is the order and connection of things'."[165] In the context Newton and Spinoza are so manipulated in Dewey's argument that the reader who might not be informed of the radical divergence between the two, would be led to suppose that Newton was a Spinozistic rationalist.

Later Dewey even states

> Modern thought, largely under the influence of a Newtonian philosophy of nature, tended to treat all existence as wholly determinate.[166]

Dewey may have been confused in his own mind as to the teachings of Newton. He says

> The implications of the positions [The reader would suppose Newtonian positions and velocities to be referred to] are expressed in Laplace's well-known saying that were there a knowledge (in mechanical terms) of the state of the universe at any one time its whole future could be predicted or deduced.[167]

Cajori, in his splendid new edition of Newton's *Principia* says

> While Newton endeavored to subject the phenomena of physical Nature to mechanical law, he realized more fully than did his immediate followers that he had not succeeded in doing so altogether. In fact, he did not believe that there was a "world machine" which kept on running according to the law of gravitation without supervision of God, [Cajori's footnote, "Consult A. J. Snow, Matter and Gravity in Newton's Philosophy, Oxford 1926, p. 204] but rather that irregularities in the solar system caused by action of planets and comets on each other are regulated by God . . .[168]

Laplace, not Newton, was a complete determinist. Cajori quotes from Laplace's *Essai philosophique sur les probabilités, Oeuvres complétes,* Tome VII, p. vi, as follows:

> If an intelligence, for one given instant, recognizes all the forces which animate Nature, and the respective positions of the things which compose it, and if that intelligence is also sufficiently vast to subject these data to analysis, it will comprehend in one formula the movements of the largest bodies of the universe as well as those of the minutest atom:

> nothing will be uncertain to it, and the future as well as the past will be present to its vision. The human mind offers in the perfection which it has been able to give to astronomy, a modest example of such an intelligence.[169]

Cajori adds

> In these words we have a bold assertion of the belief in determinism, causal relation. Laplace believed that on the law of gravitation he and others had succeeded in showing what Newton did not do, namely, that the solar system is stable. In answer to a question whether it was true that in his *Mecanique celeste* he had never mentioned the Creator, Laplace told Napoleon, "Je n'avais pas besoin de cette hypothesa-la." ["I have not had need of this hypothesis."][170]

Dewey never squarely faces the dualistic realism of Newton and other theists, contemplating determinism as relatively probable in the material world, and relatively improbable in the animal and personal world. He falsely makes Newton out to be a complete determinist and then argues

> It is this philosophy [determinism] which Heisenberg's principle has upset, a fact implied in calling it a principle of indeterminacy.[171]

Dewey continues

> The element of indeterminateness is not connected with defect in the method of observation, but is intrinsic. The particle observed does not *have* fixed position or velocity, for it is changing all the time because of inter-action: specifically, in this case, interaction with the act of observing, or more strictly, with the conditions under which an observation is possible . . .[172]

These words are erroneous in two particulars: (1) The element of indeterminateness is very definitely connected with defect in the method of observation. This defect may or may not ultimately prove to be intrinsic. Eddington in the pages last cited above in his *Nature of the Physical World,* explains clearly and at some length the difficulties which lie precisely in the "method of observation." The light necessary for the observation of the velocity of an electron is of such a nature as to definitely produce a change, so that, specifically, because of the "defect in the method of observation" the velocity and position of an electron cannot both be determined in the same degree of accuracy.

(2) Dewey's statement that "the particle observed does not *have* fixed position or velocity" is a transposition of what Eddington regards as a possibility, into the terms of positive scientific achievement. Dewey goes still farther in a later context

> That which Maxwell felt that he must look upon as a trait due to the "limitation of our faculties" turns out to be a trait of natural events themselves. No mechanically exact science of an individual is possible.[173]

It is true that Eddington thinks the latter course more probable and fruitful. He says

> In the scientific world (which has to fulfill functions less vague than merely existing) there is a moon which appeared on the scene before the astronomer; it reflects sunlight when no one sees it; it has mass when no one is measuring the mass; it is distant 240,000 miles from the earth when no one is surveying the distance; and it will eclipse the sun in 1999 even if the human race has succeeded in killing itself off before that date. The moon—the scientific moon—has to play the part of a continuous causal element in a world conceived to be all causally interlocked. . . . This theory of knowledge is primarily intended to apply to our macroscopic or large-scale survey of the physical world, but it has usually been taken for granted that it is equally applicable to a microscopic study. We have at last realized the disconcerting fact that though it applies to the moon it does not apply to the electron. It does not hurt the moon to look at it.[174]

Of this situation, Eddington says

> When we encounter unexpected obstacles in finding out something which we wish to know, there are two possible courses to take. It may be that the right course is to treat the obstacle as a spur to further effort; but there is a second possibility—that we have been trying to find something which does not exist.[175]

Thus it seems that Dewey's statement, "the particle observed does not *have* fixed position or velocity," (aside from the absurdity of introducing the word "fixed", a contradictory term which no competent physicist would use) is erroneous in stating as a positive fact that which is by no means certainly established as a scientific conclusion.

Dewey continues, on the Heisenberg principle

> . . . it is not the "mental" phase of observation which makes the difference. Since either position or velocity may be fixed at choice, leaving the element of indeterminacy on the other side, both of them are shown to be conceptual in nature. That is, they belong to our intellectual apparatus for *dealing with* antecedent existence, not to fixed properties of that existence.[176]

Note the sharp contradiction in Dewey's saying that the "difference" in the Heisenberg principle is not made by the "mental" phase of observation, and then immediately adding that what makes the difference is that both position and velocity are "conceptual in nature" and "belong to our intellectual apparatus." What makes the "difference" is actually the difficulty of the measuring process.

Dewey proceeds to quote Bridgman

> As Bridgman says: "A cat may look at a king, but at least one bullet of light must pass if any light at all passes, and the king cannot be observed without the exertion of that minimum amount of mechanical repulsion which corresponds to the single bullet. [Quoted from an article by Bridgman in the March 1929 number of *Harper's Magazine,* the article being entitled "The New Vision of Science".] [177]

And yet even in the ultra-microscopic sense of the terms, it cannot make the slightest difference to the king whether the light reflected from his countenance falls upon the retina of a cat's eye or upon any other material object equally capable of absorbing the beam. The light by which the position or velocity of an electron may be observed, so far as things had gone when Eddington wrote, was of such a nature as to definitely change the position or the velocity thereof. *And the light is specially introduced* *for the purposes of observation*. In the case of a molar object like a king, the light in which he ordinarily moves may certainly be said to have some effect upon his physical position, velocity, and general reactions, but the light is not ordinarily introduced for the purposes of observation. It would be precisely the same whether the cat were there or not.

We have no interest in denying that in many cases the process of observing modifies the thing observed. In many cases also the process of observing is *for the purpose* of some modification which may or may not be accomplished in the observing process itself. However, Dewey cannot cite scientific evidence to show that in *all* cases the sheer process of observation itself necessarily modifies the thing observed. Quite the contrary seems to be the case in most instances of the observation of molar objects.

Bridgman himself says

> It seems . . . that the general principle of the determinism of the future by the present may be saved by a change in the definition of what we mean by the present condition of the system, ridding it of its mechanical and other special implications, and making more immediate connection with direct experiment. . . .
>
> With this enlarged understanding of what we mean by present state of the system, it seems to me that physical evidence is now rather favorable to the view that the present determines the future, subject to qualification about the penumbra, at least as far as large scale phenomena are concerned. It appears much more doubtful when we come to small scale phenomena, and in particular it is doubtful whether the principle can be applied to the details of the quantum process, and in fact it is not certain that it has meaning. It is certain that if it is true an enormous amount of structure beyond any that has yet been detected is implied.[178]

Dewey's confidence, however, knows no bounds. He continues

> The principle of indeterminacy thus presents itself as the final step in the dislodgment of the old spectator theory of

> knowledge. . . . If we persist in the traditional conception, according to which the thing to be known is something which exists prior to and wholly apart from the act of knowing, then discovery of the fact that the act of observation, necessary in existential knowing, modifies that pre-existent something, is proof that the act of knowing gets in its own way, frustrating its own intent.[179]

Omitting the words "and wholly apart from" as the straw with which Dewey so frequently makes straw men of opinions which he opposes, it is relevant to ask when and how the "discovery of the fact that the act of observation . . . modifies that pre-existing something" was made. Descartes certainly knew that his operations upon cadavers modified the tissues dissected. Such experiences were not brought to light for the first time by the Heisenberg principle.

Dewey continues

> One important result of acknowledgment of the philosophic modification involved in the principle of indeterminacy is a definite change in our conception of natural laws. . . . This change involves a reversal of the theory which has dominated thought since the Newtonian system obtained full sway. According to the latter, the aim of science is to ascertain laws; individual cases are known only as they are reduced to instances of laws.[180]

And yet after all Dewey has said against *a priori* laws, he inadvertently drops into the same vein of thought observed above in his chapter on "The Play of Ideas." He says

> Any instrument which is to operate effectively in existence must take account of what exists, from a fountain pen to a self-binding reaper, a locomotive or an airplane. But "taking account of", paying heed to, is something quite different from literal conformity to what is already in being. It is an adaptation of what previously existed to accomplishment of a purpose.[181]
>
> The recognition that laws are means of calculating the probability of observation of an event signifies that in basic

> logic there is no difference in the two kinds of cases. The full and eventual reality of knowledge is carried in the individual case not in general laws isolated from use in giving an individual case its meaning. Thus the empirical or observational theory of knowledge comes to its own, although in quite a different way from that imagined by traditional empiricism.[182]

It is surprising to find a great opponent of the "spectator" theory of knowledge saying that in his philosophy "the empirical or observational theory of knowledge comes to its own." It is difficult, if not impossible, to make out any distinction between "observational" and spectatorial, or that which pertains to a "spectator".

A priori laws appear again

> . . . the abstractions of mathematics and physics represent the common denominators in all things experienceable . . . the qualities [of events] are still there, are still experienced, although as such they are not the objects of knowledge.[183]

In Dewey's chapter "The Supremacy of Method" he refers to thinking as "deferred action" and defines his term

> Many definitions of mind and thinking have been given. I know of but one that goes to the heart of the matter:—response to the doubtful as such.[184]

He continues

> There is no separate "mind" gifted in and of itself with a faculty of thought; such a conception of thought ends in postulating the mystery of a power outside of nature and yet able to intervene within it. Thinking is objectively discoverable as that mode of serial responsive behavior to a problematic situation in which transition to the relatively settled and clear is effected.[185]

This passage has been quoted in part in the discussion of Dewey's psychology. The denial of the existence of a substantive mind of any sort is one of the three great *a priori* negatives which characterize Dewey's philosophy throughout.[186]

Further defending his theory of the mind as a mere functioning, Dewey says

> . . . the theory that we have advanced is self-applying. Its only "assumption" is that something is done, done in the ordinary external sense of that word, and that this doing has consequences. We define mind and its organs in terms of this doing and its results, just as we define or frame ideas of stars, acids and digestive tissues in terms of *their* behaviour.[187]

Dewey takes sharp exception to any view which "assumes that we have some kind of advance intimation of what sort of a thing knowledge must be, and hence can use this conception as a standard for judging particular conclusions." He says

> The theory in question makes no such assumption. It asserts that by some operations conclusions emerge in which objects once uncertain and confused are rendered clear and stable. Alter names as much as you please; refuse to call one set of consequences knowledge and another error, or reverse the appellations, and these consequences remain just what they are. They present the difference between resolved and clarified situations and disordered and obscure ones.[188]

The passage last quoted is particularly significant for an understanding of Dewey's epistemology. The terms, "knowledge" and "error" or "truth" and "falsehood", may be *reversed* or may be withheld from discourse entirely, and the operations of inquiry are not in the least affected.

Most astonishing is the fact that Dewey is unconscious of the normative words which he has introduced to take the place of "knowledge" and "error". Such terms as "uncertain and confused", "clear and stable", "disordered and obscure", "resolved and clarified", are just as truly dependent upon some standard of measurement or comparison as the words, "true" and "false". Take any given process as a whole, as Dewey takes the various processes or situations of inquiry, and from the *inside only,* there can be no distinction between the confused and the clear of such process as wholes. Whatever is is; and the confusion or clarity of any given process is meaningless except as it has reference to some horizon wider than itself or some differentiation within itself. Thus Dewey's objection that "traditional theory of mind and its organs of knowledge" are "super-natural or extra-natural",[189] would apply with equal force to his own constant description of the ongoing of the inquiry process.[190]

Dewey seems vaguely conscious that there is a difficulty in regarding problems and values as having references as only *within* situations, the over-all inquiry process being regarded as a whole with *no exterior,* or in other words "nature" being regarded as "a term which collectively represents all possibilities and all actualities."[191] There can be no recognizable problem or value for nature as an undifferentiated whole. In order to recognize problems and values within any given process, the various parts of the process must be differentiated, otherwise the *directional* meaning of the terms, "problems" and "values" would disappear. Dewey is entirely opposed to the segregation of any part or aspect of nature as the realm with reference to which problems and values exist. He says

> The relegation of the problematic to the "subjective" is a product of the habit of isolating man and experience from nature. Curiously enough modern science has joined with traditional theology in perpetuating this isolation.[192]

Dewey argues that to locate problems and values in the subjective, or any other realm to which problems and values are relative, has been used "to substantiate the being of a reality higher than nature, one qualified by the purpose and value that are extruded from natural existence." And he feels that such differentiation has been given support by

> . . . the negative conclusions of modern science: —negative, that is to say, when, because of the persistence of earlier notions about mind and the office of knowledge, science is taken to disclose an antecedent natural world.[193]

Dewey has for the moment forgotten his elaborate attempt to show that modern science supports his own philosophy.

Dewey feels that he must place problems and values within the natural process, *without differentiation.* Natural science claims to study the world as it is; and science as such, Dewey (in this context) thinks, is neutral with reference to values. Science discloses "an antecedent natural world" as it *is,* passing no judgment whatever on what it *ought* to be. But this fact "extrudes" or throws out the very dynamic principle of Dewey's philosophy, namely the process of resolving problems.

Dewey's answer to this question amounts to a mere redundancy. Whatever situation passes away or is in process of passing away, is to be *defined* as a problem, and as an obscurity. Whatever situation replaces that which passes away, is *by definition* a resolution and clarification of the problem! The fact that the words, "problem" and "resolution," etc., have lost their common meaning seems to make no difference.

Dewey's opinion that natural science has nothing to do with, or "extrudes" values, is not consistently adhered to, for he says in a later chapter

> . . . moralists usually draw a sharp line between the field of the natural sciences and the conduct that is regarded as moral. But a moral that frames its judgments of value on the basis of consequences must depend in a most intimate manner upon the conclusions of science. For the knowledge of the relations between changes which enable us to connect things as antecedents and consequences *is* science.[194]

With further effort to show "the supremacy of method" Dewey continues

> Nothing is more familiar than the standardized objects of reference designated by common nouns. Their distinction from proper names shows that they are not singular or individual, not existing things. Yet *"the* table" is both more familiar and seemingly more substantial than *this* table, the individual. "This" undergoes change all the time. It is interacting with other things and with me, who are [Sic. He means "am" or else he intended "you" for "me"] not exactly the same person as when I last wrote upon it. "This" is an indefinitely multiple and varied series of "thises". . . . *The* table as *not* a

> table but as a swarm of molecules in motions of specified velocities and accelerations, corresponds to a liberated generalization of the purposes which *the* object may serve.[195]

Here of course Eddington's work is referred to. The dualist objects to the "not . . . but" near the end of the passage, and insists that the table is *both* a swarm of molecules, *and* a table, with no contradiction whatsoever. To speak of two tables as Eddington does is no less absurd than to speak of two Washingtons, one a city in the north because it is north of Virginia, the other a city in the south because it is south of Pennsylvania.

Dewey's words indicating that "common nouns" are "not existing things," presuppose the Platonic assumption that the universal is prior to, or at least outside of the particular. From the Aristotelian viewpoint, or the viewpoint of the dualist, the universal is *in* the particular, ordinary processes of time and motion being assumed and taken for granted. "*This* table" means this particular table subject to all the processes of wear and tear internal and external which may be changing it. It is precisely the same as "*the* table". It is an existing thing. It existed in the past, it exists in the present, it will exist in the future. The fact that it is changing and there will come a time when it will no longer be a table but will be split up for wood for the fireplace, is fully contemplated within the dualist usage of both "this table" and "the table".

But Dewey must get rid of *all* tables as such. If the participle "tabling" had not been pre-empted for parliamentary usage, that would be Dewey's nominal residuum, for he says

> The perceived and used table is the only table, for it alone has both individuality of form—without which nothing can exist or be perceived, and also includes within itself a continuum of relations or interactions brought to a focus.[196]

The elimination of the knower and the known as distinguishable items is interestingly set forth in the following words

> For according to the pattern set by the practice of knowing, knowledge is the fruit of the undertakings that transform a problematic situation into a resolved one [by definition].[197]
>
> If it be admitted that knowing is something which occurs within nature, then it follows as a truism that knowing is

> an existential overt act. Only if the one who engages in knowing be outside of nature and behold it from some external locus can it be denied that knowing is an act which modifies what previously existed . . .[198]

Grant the definition of knowledge, grant that the knower cannot be distinguished, for that would put him outside of "nature", and of course it follows *by force* that knowing is an act of changing within existence.

Dewey's last two chapters, "The Construction of Good" and "The Copernican Revolution" constitute the fifth general division of his outline as proposed in his first chapter. The description of this division was

> The consequences of substituting search for security by practical means for quest of absolute certainty by cognitive means will then be considered in its bearing upon the problem of our judgments regarding the values which control conduct, especially its social phases.[199]

Dewey's discussion of the construction of good is in the main an attack upon the notion of *a priori* values. He says

> Just as rational conceptions were once superimposed upon observed and temporal phenomena, so eternal values are superimposed upon experienced goods. In one case as in the other, the alternative is supposed to be confusion and lawlessness. Philosophers suppose these eternal values are known by reason; the mass of persons that they are divinely revealed.[200]

Dewey objects to what he calls mere empirical hedonism and insists upon "experimental empiricism", the latter being one of his customary terms for his own philosophy. Value is not determined by mere enjoyment, but it is defined "by enjoyments which are the consequences of intelligent action."[201] To designate an object a value "is to assert that it satisfies or fulfills certain conditions."[202] "To declare something satisfactory is to assert that it meets specifiable conditions."[203] Dewey fails to give the specifications or the criteria, although he repeats frequently throughout this chapter his attack upon mere enjoyment as a standard, and his insistence that reflective thinking, or experimentation, or the process of inquiry, is essential to the sifting out of pleasures.

> . . . any doctrine that identifies the mere fact of being liked with the value of the object liked . . . fails to give direction to conduct when direction is needed . . .[204]
>
> Values (to sum up) may be connected inherently with liking, and yet not with *every* liking but only with those that judgment has approved, after examination of the relation upon which the object liked depends. A casual liking is one that happens without knowledge of how it occurs nor to what effect. The difference between it and one which is sought because of a judgment that it is worth having and is to be striven for, makes just the difference between enjoyments which are accidental and enjoyments that have value and hence a claim upon our attitude and conduct.[205]
>
> Thus we are led to our main proposition: *Judgments about values are judgments about the conditions and the results of experienced objects; judgments about that which should regulate the formation of our desires, affections and enjoyments.*[206]

The thing that makes "just the difference" between mere hedonism and Dewey's experimentalistic hedonism is that the latter is based upon "judgment that it is worth having and is to be striven for". But what are the criteria of the judgment?

A careful examination of this entire chapter shows that Dewey has progressed just beyond the Cyrenaic hedonism of Aristippus, whose leading doctrine was "that pleasure is the chief end of life, and that intense and immediate pleasures are preferable,"[207] to the hedonism of the Epicureans and no farther. The latter school is distinguished from the former in that pleasure was to be carefully deliberated upon, and not taken in its mere immediacy. In his construction of the good Dewey here gives no consideration to "Utilitarianism",[208] and indeed in his philosophy there is no reason or ground for Utilitarian ethical considerations.

Dewey gives a considerable amount of space to the word endings "able" and "worthy", without seeming to be conscious that Mill had said practically the same thing, and without avoiding the obvious ambiguity into which Mill fell. Mackenzie[209] discussing Mill's opinion on this point says

> The confusion that has often been made between the two theories [ethical hedonism and psychological hedonism] seems to be due in part to an ambiguity in the word "desirable". This point also may be illustrated by a passage from Mill. "The only proof", he says, "capable of being given that an object is visible, is that people actually see it. The only proof that a sound is audible, is that people hear it. . . . In like manner, I apprehend, the sole evidence it is possible to produce that anything is desirable, is that people do actually desire it." It is here assumed that the meaning of the word "desirable" is analogous to that of "visible" and "audible". But "visible" means "able to be seen," and "audible" means "able to be heard"; whereas "desirable" does not usually mean "able to be desired". When we say that anything is desirable, we do not usually mean merely that it is able to be desired. There is scarcely anything that is not able to be desired. What we mean is rather that it is *reasonably to be desired,* or that it *ought* to be desired.

It is the distinction between the use of "able" in words like "visible" and its use in words like "desirable", which Dewey fails to note.

Dewey lists three changes which he believes the adoption of his system of experimentalism in ethics will bring about. (1)

> Change from forming ideas and judgments of value on the basis of conformity to antecedent objects, to constructing enjoyable objects directed by knowledge of consequences, is a change from looking to the past to looking to the future. We are . . . to get away from . . . the notion that . . . the arbiter is found in the past, although there are many ways of interpreting what in the past is authoritative. Nominally, the most influential conception doubtless is that of a revelation once had or a perfect life once lived.[210]

This reference to *"a revelation once had . . . a perfect life once lived"* is obviously intended to eliminate Christ and the Bible as normative. The dynamic *future* references, the Messianic age, the coming kingdom of peace, of the Judeo-Christian tradition are entirely outside of Dewey's field of vision. He sees this tradition merely as that of an "arbiter . . . in the past."

(2) The second "difference to be made by carrying the experimental habits into all matter of practice is that it cuts the roots of what is often called subjectivism, but which is better termed egoism."[211] Under this heading Dewey attacks all regard for the spiritual life of the individual as individual, and all regard for ideals as such. He urges that "men would think of themselves as agents not as ends; ends would be found in experienced enjoyment of the fruits of a transforming activity."[212] His method is hortatory not evidential. It is an example of anti-religious homiletics rather than philosophy.

(3) A third

> significant change that would issue from carrying over the experimental method from physics to man concerns the import of standards, principles, rules. With the transfer, these and all tenets and creeds about good and goods would be recognized to be hypotheses. . . .The change would do away with the intolerance and fanaticism that attend the notion that beliefs and judgments are capable of inherent truth and authority . . .[213]
>
> Any belief as such is tentative, hypothetical . . . Consequently, it should be the last thing in the world to be picked up casually and then clung to rigidly. When it is apprehended as a tool and only a tool, an instrumentality of direction, the same scrupulous attention will go to its formation as now goes into the making of instruments of precision in technical fields.[214]

Dewey seems to have no comprehension of the historical fact that some men before his day have given "scrupulous attention" to the "formation" of fruitful *beliefs,* and have used them as the "instrumentality of direction" without adopting Dewey's dogmatic agnosticism toward the possibility of attaining some genuine truths.

A sample of the imaginative construction of pseudo-history is the following:

> The idea that adherence to standards external to experienced objects is the only alternative to confusion and lawlessness was

> once held in science. But knowledge became steadily progressive when it was abandoned, and clues and tests found within concrete acts and objects were employed.[215]

If the words "external to experienced objects" have any meaning in the first sentence in this passage, then the sentence is historically false, for "science" has never adhered to standards which were not operative *within* the experienced objects. Probably what Dewey really means instead of "standards external to" is "standards not entirely produced by". In such case the sentence would be true of "science" which has developed in the discovery and the elaboration of "standards" commonly called the laws of nature.

But what is the meaning of the second sentence in the passage quoted? When did "science" or "knowledge" "abandon" the concept of "standards"? Scientific knowledge never had standards external to experienced objects; scientific knowledge has certainly not abandoned standards not entirely produced by experienced objects. The only rational conclusion possible from such a passage as this, is that the steady progress of scientific knowledge after science abandoned adherence to standards, is a futuristic adventure of a philosopher who will not have arbiters in the past, *not even in the matters of historical data.* Dewey later says

> William James [Dewey does not give a bibliographical reference] was well within the bounds of moderation when he said that looking forward instead of backward, looking to what the world and life might become instead of to what they have been, is an alteration in the "seat of authority."[216]

Dewey begins his final chapter, which is entitled "The Copernican Revolution", with a discussion of Kant's usage of that striking phrase. Kant did not mean to imply the vast extent of the revolution which his philosophy introduced, but rather an analytical quality thereof. Copernicus had shown that the earth is not the physical center of the universe, and that the reason for the notion that it was, was merely that man assumed his own viewpoint as central. Discounting his own viewpoint, a truer and more accurate view of the universe could be had. Similarly Kant suggested that the thought forms of time and space are due to man's viewpoint, or rather to the constitution of man's mind, and that time and space cannot be certainly predicated of the external world.

There is a difference however which Dewey recognizes in part. Copernicus gave a truer knowledge of the outside world by discounting man's point of view. Kant, supposedly, reduced the knowledge of the outside world to zero, by ascribing everything to man's constitution and viewpoint.

Dewey regards his own philosophy as indeed a "Copernican revolution". He says

> . . . since he [Kant] happens to be the author of the phrase "Copernican revolution", his philosophy forms a convenient point of departure for consideration of a genuine reversal of traditional ideas about the mind, reason, conceptions and mental processes.[217]

If Copernicus partly corrected the common view of astronomy by showing more nearly the actual nature of the external world and explaining previous errors as being due to man's point of view, and if Kant reduced the external world to the unknowable, though none the less real, by an over-emphasis upon the supposed subjectivity of the knowledge process, it may be said that Dewey has eliminated both the external and the subjective worlds entirely, and has reduced everything to the status of process, process with no subject or object, no external or internal.

Dewey proceeds to argue that "As far as philosophy is concerned, the first direct and immediate effect" of the introduction of instrumentalism is

> the complete abandonment of what we may term the intellectualist's fallacy. By this is meant something which may also be termed the ubiquity of knowledge as a measure of reality.[218]

Dewey used the same phrase, "intellectualist fallacy" in his chapter, "The Naturalization of Intelligence". He there said, "The assumption of the proper ubiquity of knowledge is the great intellectualist fallacy."[219]

In his discussion of the intellectualist fallacy as the ubiquity of knowledge, in his concluding chapter, he several times loses the thread of his discourse. After his definition quoted above from page

277 he devotes two pages to a denunciation of philosophies which *divorce* knowledge from actual experience making "a definite separation between the world in which man thinks and knows and the world in which he lives and acts", and which engage "in a life of knowing, apart from and above a life of doing", or "the elevation of knowledge above doing and making." Such phrases would apply to certain types of mysticism or gnosticism, but they are clearly irreconcilable with his definition of the intellectualist fallacy, the ubiquity of knowledge.

As against views as *divorce* of knowledge from experience, Dewey says

> There is no *practical* point gained in asserting that a thing *is* what it is *experienced* to be apart from knowledge.[220]
>
> . . . knowledge is an indispensable medium of our hopes and fears, of loves and hates, if desires and preferences are to be steady, ordered, charged with meaning, secure.[221]

But on the other side Dewey argues against the ubiquity of knowledge.

> The world as we experience it is a real world. But it is not in its primary phases a world that is known, a world that is understood, and is intellectually coherent and secure. Knowing consists of operations that give experienced objects a form in which the relations upon which the onward course of events depends are securely experienced.[222]

In a mixed vein, he continues

> The glorification of knowledge as the exclusive avenue of access to what is real is not going to give way soon nor all at once. But it can hardly endure indefinitely. The more widespread become the habits of intelligent thought, the fewer enemies they meet from those vested interests and social institutions whose power depends upon immunity from inspection by intelligence, in short, the more matter of course they become, the less need will there seem to be for giving knowledge an exclusive and monopolistic position.[223]

The confusion of thought in the quotation last given is truly amazing. The "vested interests and social institutions whose power depends upon immunity from *inspection* by *intelligence,*" are at the same time presented as glorifying knowledge as "the exclusive avenue of access to what is real". As the "habits of intelligent thought" become "more widespread" the "glorification of knowledge" is expected to decrease. And all of this is supposed to illustrate the "intellectualist fallacy" which is "the ubiquity of knowledge as a measure of reality."

Some light is thrown upon the confusion by consideration of the fact that Dewey, by definition, excludes from knowledge all mere sensation and emotion, — in fact all experience except that which is the result of the process of inquiry.

> Knowledge then does not encompass the world as a whole. But the fact that it is not co-extensive with experienced existence is no defect or failure on its part. It is an expression of the fact that knowledge attends strictly to its own business: —transformation of disturbed and unsettled situations into those more controlled and more significant.[224]
>
> Hopes and fears, desires and aversions, are as truly responses to things as are knowing and thinking. Our affections, when they are enlightened by understanding, are organs by which we enter into the meaning of the natural world as genuinely as by knowing, and with greater fullness and intimacy. This deeper and richer intercourse with things can be effected only by thought and its resultant knowledge...[225]

The last two passages quoted with the exception of the last seventeen words (the last incomplete sentence), would be perfectly harmonious with Dewey's definition of the intellectualist fallacy as the ubiquity of knowledge, when his specialized definition of knowledge is kept in mind. These last words contradict the rest, and support the ubiquity of knowledge. But if the rest of the quotation is what he means by opposing the ubiquity of knowledge, what has it to do with the separation of knowledge from action, called "the glorification of knowledge"?

A competent psychologist would not fail to distinguish between the emotional or affective aspects of psychological phenomena and the cognitive aspects. However, it would seem rather obvious that the emotional experiences of life are always accompanied by *some* cognition. The general word knowledge is much better used as

Tennant uses it, including all phases and elements which enter into cognition.

Dewey has in mind in this portion of his book, several different strands of thought, (1) The definition of knowledge; (2) Those stages of experience *not* included in knowledge *as he defines it;* (3) Certain types of philosophy which have glorified knowledge and separated it from ordinary practical experience; and (4) *Other* types of philosophy which have insisted that knowledge is ubiquitous in all kinds of experiences. It would not be difficult to re-write these pages setting forth these different lines of thought in their various relationships. However, as the material stands, it is very badly confused.

Dewey's attack upon traditional normative ethics comes to its highest point in the following passage:

> The assumption of the antecedent inherent identity of actual and ideal has generated problems which have not been solved. It is the source [Sic] of the problem of evil; of evil not merely in the moral sense, but in that of the existence of defect and aberration, of uncertainty and error, of all deviation from the perfect. If the universe is in itself ideal, why is there so much in our experience of it which is so thoroughly un-ideal? Attempts to answer this question have always been compelled to introduce lapse from perfect Being: — some kind of fall to which is due the distinction between noumena and phenomena, things as they really are and as they seem to be. There are many versions of this doctrine. The simplest, though not the one which has most commended itself to most philosophers, is the idea of the "fall of man", a fall which, in the words of Cardinal Newman, has implicated all creation in an aboriginal catastrophe.[226]

Note the phrase "the source of the problem of evil." The problem of evil is thus held to be merely the result of the false notion that the ideal and the real are, or have been, somehow one. Is the reader to understand the word "problem" as implied a second time after the semicolon before the words "of evil not merely in the moral sense . . ."? If so, then Dewey is not discussing here the origin of evil, but only of the problem of evil. On this assumption, Dewey still throws doubt upon the fact of evil. For if there is evil as a fact, it would reasonably follow that the origin of the *problem* would be, in part at least, grounded in the *fact*, and not merely in a false notion.

But if the words be taken as they stand, with no inserted word understood, then Dewey is discussing *both* the origin *of the problem* and the origin *of evil* of all kinds, and, as one might well suppose, the origin of the problem is one and the same as the origin of the fact. On this interpretation, Dewey's view is, again, similiar to Christian Science, which ascribes evil to a mental mistake.

In either case one might infer that we must simply recognize that the ideal and the real never have been one, and never will be, and the very "source of the problem of evil" will disappear, *by definition.*

Dewey's attack upon traditional religion comes to its climax in the following material:

> Religious faiths have come under the influence of philosophies that have tried to demonstrate the fixed union of the actual and the ideal in ultimate Being. . . . the religious attitude as a sense of possibilities of existence and as devotion to the cause of these possibilities, as distinct from the acceptance of what is given at the time, gradually extricates itself from . . . unnecessary intellectual commitments.[227]

Dewey advocates that religion abandon all thought of identifying the actual and the ideal in any phase of being in the past, present or future. The ideal is continuously to remain in the realm of possibilities. With this adjustment, religion will have no more conflicts with science.

Dewey continues

> But religious devotees rarely stop to notice that what lies at the basis of recurrent conflicts with scientific findings is not this or that special dogma so much as it is alliance with philosophical schemes which hold that the reality and power of whatever is excellent and worthy of supreme devotion depends upon proof of its antecedent existence, so that the ideal of perfection loses its claim over us unless it can be

> demonstrated to exist in the sense in which the sun and stars exist.
>
> Were it not because of this underlying assumption, there could be no conflict between science and religion. The currency of attempts to reconcile scientific conclusions with special doctrines of religion may unfortunately suggest, when such a statement is made, the idea of some infallible recipe for conciliation. But nothing is further from its meaning. It signifies that a religious attitude would surrender once for all commitment to beliefs about matters of fact, whether physical, social or metaphysical. It would leave such matters to inquirers in other fields.[228]

If religion will obligingly abandon all beliefs about matters of fact in all realms, why, very obviously, it will have no more conflict with inquirers in the fields of matters of fact! A city council once discovered that all streetcar collisions occur at the *ends* of streetcars. It promptly had all ends cut off from all its streetcars, to prevent further collisions.

Dewey is anxious not to fix beliefs about values, with one notable exception, namely that his own theory of values must be defended and maintained at all costs. He says

> Nor would it [religion] substitute in their place [in the place of beliefs about matters of fact] fixed beliefs about values, save the one value of the worth of discovering the possibilities of the actual and striving to realize them.[229]

It would seem rather obvious that if even Dewey's theory of value is to be maintained by religion, and presumably by all other parties, some persons some time are going to think that some values are realizable, or even that they have been realized, or at least that the realization of them is so closely approximated that some beliefs ought to be relatively stable. Some values are likely to try to become facts. It appears thus that if religion should surrender completely as Dewey suggests, giving up all territory in the field of actuality, and giving up all values but Dewey's the peace and tranquility would still be very temporary and impermanent.

Dewey continues to labor his point

> The claims of the beautiful to be admired and cherished do

> not depend upon ability to demonstrate statements about the past history of art. The demand of righteousness for reverence does not depend upon ability to prove the existence of an antecedent Being who is righteous.[230]

Throughout the book *The Quest for Certainty,* Dewey frequently refers to the probability argument, but he never elaborates or defines his terms. One who is familiar with the intricate and careful discussions of probability in the writings of Charles S. Peirce, to whom Dewey occasionally refers, is impressed with the fact that Dewey's notion of probability is by no means that advocated by Peirce, or by such a logician as Jevons. For Peirce and Jevons probability is probability *of fact* or *of truth,* and probability arguments lead to the approximation of *truth* or of true statements about *fact.* As I have pointed out in discussing Tennant's epistemology, the probability argument has been prominent in polemic theology throughout its history and came to climactic expression in the writings of Bishop Butler two hundred years ago. Dewey does not truly represent an appeal to probability argument, as the argument is known in the history of logic.

It must be admitted however that he has indeed applied to philosophy the strong medicine which he has administered to religion. The quest for certainty is to be abandoned not because our best tools are in the nature of the probability argument, but because truth and fact are not *there* to be attained or approximated by any manner of quest.

"Logic: The Theory of Inquiry"

Confronted with the vast literature produced by John Dewey's facile pen over a period of six decades, —a literature, many portions of which are, by his most ardent admirers, admitted to be clouded in obscurity of expression—, the student is likely to be at a loss for perspective. The problem of understanding Dewey's empirical philosophy is not like that of charting a mountain range by aeroplane pictures in the clear light of day. It is more like the problem confronting the oceanographers as they sailed forth to chart the Mid-Atlantic ridge.[231] The most accurate instrument for surveying Dewey's views is not analogous to a stereoscopic camera, but to a fathomometer, reaching down into obscurity. Any opinion as to the outstanding features and general configuration of his system of philosophy is subject to correction by those who view his work from different standpoints.

It is probable that when history looks back upon the work of John Dewey, his *Logic* will be regarded as his *magnum opus.* It will be the volume typically studied for an understanding of the man and the social situation in which he stood.

Not all of Dewey's *Logic* comes within the range of this thesis. An investigation of it in its entirety, with the philosophical background against which it is written, would be a thesis subject in itself. The treatment given here must be highly selective, and must omit many aspects which other students of Dewey would think should be included.

In the opening paragraph in the preface, as I have indicated above, Dewey states that the *Logic* is the culmination and inclusive setting forth of his work in this field from the *Studies in Logical Theory* of 1903 through the *Essays in Experimental Logic* and the different editions of *How We Think.* He does not mention the *Quest for Certainty* but, as has been indicated above, that work should be regarded as introductory to the *Logic* itself. After the opening paragraph of the preface, Dewey launches into a highly condensed statement of the purpose and content of the book.

> In this connection, attention is called particularly to the principle of the continuum of inquiry, a principle whose importance, as far as I am aware, only Peirce had previously noted.[232]

By "the continuum of inquiry" Dewey designates his combined system of epistemology and ontology. Negatively, he holds that there is no *a priori* ontological substance, no *a priori* rational law, no *a priori* existing mind or thinking subject. Affirmatively, he finds the process of inquiry itself the sum and total of all that is or could be.

This is further brought out by the phrase just below in the same paragraph, "The conjugate relation of observed and conceptual material," which indicates that Dewey strongly rejects any dualism of observed material on the one hand and conceptions thereof on the other. Such polarity would leave room for the erection of a permanent (though growing and dynamic) system of truth, in which facts in the past would have normative significance for acts in the future. Such a system of truth would be intolerable to Dewey, and must be rejected even at the expense of denying the distinction between subject and object.

So far as Peirce's views are concerned, they have been discussed in the introduction to this thesis, in connection with the subject of pragmatism. It has been shown that Peirce was a neo-Kantian idealist who did not believe in the existence of ontological material objects, but who did believe in the ontological *a priori* existence of God and the soul, and of the laws of logic. Dewey has taken Peirce's oft-repeated saying to the effect that the total meaning of a term is found in its effects, —Peirce emphasizing not merely experienced effects but the sum total of all possible effects—. Dewey has taken this out of its context, misconstrued it, and applied it as though Peirce had taught that the total meaning of a term is its interaction in the process of inquiry itself. Sufficient has been said to indicate that this was by no means the doctrine which Peirce advanced.

Dewey's paragraph under consideration continues

> Application of this principle [the continuum of inquiry] enables an empirical account to be given of logical forms, whose necessity [that is, the necessity of "an empirical account"] traditional empiricism overlooked or denied, while at the same time it proves that the interpretation of them [logical forms] as *a priori* is unnecessary.[233]

The phrase, "an empirical account . . . of logical forms" is the heart and center of the entire matter when taken in connection with the fact that Dewey refuses to regard such logical forms as *a priori*. It has been suggested in this thesis that logical forms are in the category of abstract possibilities, not material existences, not self-evident, not created by the mind, but discovered, and hence *a priori*, not as entities but as empty possibilities. I shall show that Dewey, in the main, in his *Logic* as in his *Quest for Certainty*, not only denies the rationalistic opinion that logical forms are *a priori* existent entities producing the ontological world, and not only denies that they are self-evident, but he also denies that logical forms are discoverable in primary inquiry and that they are thus *a priori* in the sense of being empty possibilities which cannot be violated. It is his thesis in the main that logical forms are *produced in and by* the process of inquiry itself.

Of significance almost equal to the two sentences quoted above is the following from the fourth paragraph of the Preface:

> In the present state of logic, the absence of any attempt at symbolic formulation will doubtless cause serious objection in the minds of many readers. This absence is not due to any aversion to such formulation. On the contrary, I am convinced that acceptance of the general principles set forth will enable a more complete and consistent set of symbolizations than now exists to be made. The absence of symbolization is due, first, to a point mentioned in the text, the need for development of a general theory of language in which form and matter are not separated; and, secondly, to the fact that an adequate set of symbols depends upon prior institution of valid ideas of the conceptions and relations that are symbolized.[234]

A superficial reading of these words would indicate that Dewey has merely paid his respects to symbolic logic. Such, however, is not the case. Indeed he does say that he believes that his logic will "enable a more complete and consistent set of symbolizations than now exist to be made." But the words which follow make it clear that the system of symbolizations to which he looks forward on the basis of his own logic, is not an improvement or refinement of symbolic logic as now exemplified in works on that subject. Symbolic logic sharply and clearly distinguishes (though it does not of course, "separate") form and matter, just as arithmetic assumes a distinction between the abstract manipulation of figures and the actual carrying home of potatoes. In a system of symbolic logic which erases the distinction between matter and form by destroying both as heretofore conceived, and insisting that the process of inquiry itself produces and contains all the matter and form that is, or could be, would not be recognizable as within the field now known as symbolic logic. If dualisms, polarities and sharp discriminations are to be eliminated, one wonders what need there is for the remarkable precision exemplified in the symbolic method. Although Dewey pays lip service to the idea, there is no evidence that he has ever made any contribution in the direction of the precision which is achievable through the more elaborate use of logical symbols.

Part I of Dewey's *Logic* entitled "Introduction: The Matrix of Inquiry," presents the major problem to be considered in this study of the empiricism of Dewey's epistemology. The first chapter of the introduction, "The Problem of Logical Subject-matter," begins with a distinction between proximate subject-matter and ultimate subject-matter. Dewey says

> No one doubts that the relations expressed by such words as *is, is-not, if-then, only,* (*none but*), *and, or, some-all,* belong to the subject-matter of logic in a way so distinctive as to mark off a special field. When however it is asked how and why the matters designated by these terms form the subject-matter of logic, dissension takes the place of consensus. . . . These are questions of what I call the ultimate subject-matter of logic; and about this subject-matter controversy is rife.[235]

Dewey then proceeds to suggest several conflicting views of the ultimate subject-matter of logic. Logic is held to be

A. The science of necessary laws of thought.
B. The theory of ordered relations, these relations being wholly independent of thought.
    (1) Relations constituting a realm of pure possibilities independent of actuality.
    (2) Ultimate invariant relations forming the *order* of nature.
    (3) The rational structure of the universe, independent of human thought, reproduced in part by human reason.
C. A study of the processes of inference by which scientific knowledge is attained.
D. The study of the formal structure of language as a system of symbols.

(1) The mere transformation of identical syntactical forms.
(2) A universal algebra of existence.

The formal arrangement of this outline is not found in Dewey's work but it may assist in understanding his treatment of the subject. Of the various theories of the nature of the ultimate subject-matter of logic in the above outline, a combination of (1) and (3) under B. is approximately the view defended in this thesis, the view of logic consistent with realistic dualism, though one might prefer to substitute the word "discovered" for the word "reproduced", and omit the words "independent of actuality." C. is of course Dewey's own view.

By way of making a choice between the different views of the ultimate subject-matter of logic, Dewey points out that

> On the face of the matter, it does not seem fitting that logical theory should be determined by philosophical realism or idealism, rationalism or empiricism, dualism or monism, atomistic or organic metaphysics.[236]

Nevertheless, he argues that logic is a branch of philosophical theory, and, reciprocally, philosophizing must satisfy logical requirements.

> This list of diverse views given above is put down by way of illustration. It is not exhaustive, but it suffices to justify one more endeavor to deal with proximate subject-matter in terms of a theory concerning the ultimate subject-matter of logic.[237]

This is Dewey's justification for his own logic developed from his own instrumentalist philosophy.

He next proceeds to lay down three qualifications which a theory of the ultimate subject-matter of logic must possess.

> Whatever is offered . . . as the ground of a theory must possess the property of verifiable existence in some domain, no matter how hypothetical it is in reference to the field in which it is proposed to apply it. It has no standing if it is drawn from the void and proffered simply *ad hoc*. . . . [Secondly it must] be able to order and account for what has been called the proximate subject-matter. . . . In the third place, the hypothesis must be such as to account for the arguments that

> are advanced in support of other theories. This condition corresponds to the capacity of a theory in any field to explain apparent negative cases and exceptions.[238]

Now comes the paragraph which, for purposes of this thesis, is the most important passage in Dewey's *Logic,* the most revealing of the essential properties of his empirical epistemology.[239]

> From these preliminary remarks I turn to statement of the position regarding logical subject-matter that is developed in this work. The theory, in summary form, is that all logical forms (with their characteristic properties) arise within the operation of inquiry and are concerned with control of inquiry so that it may yield warranted assertions. This conception implies much more than that logical forms are disclosed or come to light when we reflect upon processes of inquiry that are in use. Of course it means that; but it also means that the forms *originate* in operations of inquiry. To employ a convenient expression, it means that while inquiry into inquiry is the *causa cognoscendi* of logical forms, primary inquiry is itself *causa essendi* of the forms which inquiry into inquiry discloses.[240]

The reader may have doubted, even through the entire study of the *Quest for Certainty,* that the opinion that Dewey essentially denies *a priori* logical forms in all respects, even in the sense of abstract empty possibilities, is correct. The reader will remember the striking passages in the chapter in that book entitled *Ideas at Work,* in which Dewey so clearly contradicted this, his usual position. It will appear, as this study proceeds, that there are also passages in the *Logic* in which *a priori* logical forms are assumed. However, the paragraph just quoted is so explicit and clear, and is so generally illustrated in most of what Dewey has to say, that there should no longer be any doubt about the matter. Dewey does not deny "that logical forms are disclosed or come to light" or, in other words, are *discovered,* in the study of logic, or "when we reflect upon the processes of inquiry" or when we engage in "inquiry into inquiry." However, his negative *a priori* is most striking in the statement that "primary inquiry", that is, the processes of human investigation, including scientific thinking and experimentation, other than logic itself, "is itself the *causa essendi* of the forms which inquiry into inquiry discloses." In other words, the forms *originate* in the operations of inquiry and are *caused thereby.*

This means that it is the process of enumeration which *makes it true* that one plus one equals two; it is the process of reasoning or argumentation which makes it true that (insofar as the proposition holds at all) contradictories cannot both be true.

In the process of the study of Dewey's *Logic* I have noted a large number of distinctive passages in which the doctrine just stated is set forth. There are doubtless many other passages which I have failed to note, and some of these which I have noted might be disputed by other students of Dewey. However, I feel that an investigation of these passages has fully the same validity as the study of geological specimens brought up from the structure of the ocean bed by boring and sampling. I had considered setting forth an analysis of these passages in tabulated form, with statistical calculations showing in what percentage of the cases Dewey adheres to the doctrine stated, and in what percentage (for there are some such cases) he contradicts this doctrine. Such a tabulated study would show nearly all blanks in the hypothetical column for cases in which Dewey cites evidence in support of his negative dogma; for it is a fact that his rejection of *a priori* logical forms is largely dogmatic, based on no presentation of evidence.

However, since a tabulated statistical study of a philosopher's opinions is unusual, and would probably be no more convincing than a discursive presentation of a few of the most important passages in which these opinions are set forth, I shall pursue the latter method in the hope that it may be equally convincing, and I believe it will be easier to follow.

Dewey refers to the paragraph to which special attention is called above, as his hypothesis of which it is the business of the book as a whole to form a justification.

> It is not the task of this chapter to try to justify this hypothesis, or to show that it satisfies the three conditions laid down. [See quotation from *Logic,* p. 3, given above.] That is the business of the work as a whole.[241]

Dewey, however, proceeds to defend his hypothesis with "two points preparatory to expounding the *meaning* (not the justification) of the conception." (1) He argues that

> . . . all other conceptions of logical subject-matter that are now entertained are equally hypothetical. If they do not seem to be so, it is because of their familiarity. If sheer dogmatism is to be avoided, any hypothesis, no matter how unfamiliar, should have a fair chance and be judged by its results.[242]

This sounds like giving evidence for the validity of his hypothesis, evidence from "results." His argument seeks, however, not to show that his hypothesis produces results which other hypotheses have failed to produce, but to show that, in his opinion, the *results of scientific achievement* have been results of his hypothesis even though those who performed these achievements have been entirely unconscious of such hypothesis.

He further argues (2)

> The other point is that inquiries, numerous in variety and comprehensive in scope, do exist and are open to public examination. Inquiry is the life-blood of every science and is constantly engaged in every art, craft and profession.[243]

All that Dewey has said affirmatively of inquiry may be accepted, and yet how does it establish his hypothesis? It would seem that he ought to produce *some* example of some kind of inquiry in which it is assumed by the investigator that the subject-matter of the inquiry is itself entirely produced not only in, but also by, inquiry. Chemistry indeed does *in part produce* results which may be included in its subject-matter but what chemist believes that the subject-matter of chemistry is entirely produced by chemical research? The subject-matter of biology is *in part* the *production* of better livestock. But what research man in animal husbandry believes that the subject-matter of his science is entirely produced in and by the process of his researches? Indeed, "inquiries . . . are open to public examination." But where is there one example of any inquiry which holds that the inquiry itself creates its subject-matter in the sense in which Dewey has said that inquiry itself is the *causa essendi* of the logical forms?

Anticipating an objection to his second enumerated point referred to above Dewey continues

> The problem reduced to its lowest terms is whether inquiry can develop in its own ongoing course the logical standards and forms to which *further* inquiry shall submit. One might reply by saying that it *can* because it has. One might even challenge the objector to produce a single instance of improvement in scientific methods not produced in and by the self-corrective process of inquiry; a single instance that is due to application of standards *ab extra.*[244]

The difficulty with this challenge is that Dewey rules out *a priori* the possibility of any evidence of the application of standards *ab extra.* The challenge in reality is not difficult to meet. For example, he has himself appealed to the Heisenberg principle of indeterminacy and has claimed that it is a discovery. Yet the words have no meaning unless it is a discovery of previously existing facts uncovered or discovered by, but not produced by, the process of inquiry. Physics had examined molar objects and the methods of inquiry were geared thereto. Physicists were surprised to *discover* that certain phenomena in the realm of the intra-atomic or electronic world, did not behave in the way in which they had supposed, by their entire process of inquiry, that all phenomena do behave. If Heisenberg has discovered anything it was the prior existence of facts and standards *ab extra.*

Similarly in logic Aristotle did not produce or make the laws of reasoning, but he discovered them. In mathematics it has been suggested that whenever man first observed that one plus one may be regarded as *two* rather than merely *more,* he was making a discovery of hitherto empty possibilities in arithmetic. We might say that Descartes invented analytical geometry but certainly it was not pure invention. It was indeed a *discovery* of hitherto empty but nevertheless prior and *ab extra* possibilities of mathematical relationships. Dewey's "challenge" is not at all difficult to meet, unless he is merely shadow-boxing, with all actual opponents ruled off the stage.

Dewey takes the science, or art, as he calls it, of metallurgy as an illustration of development with nothing *ab extra.*

> Is there any reason to suppose that advance in the art of metallurgy has been due to application of an external standard? The "norms" used at present have developed out of the processes by which metallic ores were formerly treated. There were needs to be satisfied; consequences to be reached. As they were reached, new needs and new possibilities opened to view, and old processes were remade to satisfy them. In short, some procedures worked; some succeeded in reaching the end intended; others failed. The latter were dropped; the former were retained and extended. It is quite true that modern improvements in technologies have been determined by the advance in mathematics and physical science. But these advances in scientific knowledge are not external canons to which the arts have had automatically to submit themselves. They provided new instrumentalities, but those instrumentalities were not self-applying. They were used; and it was the result of their use, their failure and success in accomplishing ends and effecting consequences, that provided the final criterion of the value of scientific principles for carrying on determinate technological operations.[245]

Now it would seem to me that metallurgy is an excellent example of an art in the advance of which *external* standards have had the greatest effect. Mowing hay is scarcely a part of the art of metallurgy. Yet the need for a sickle blade capable of taking and holding a sharp edge, and the need for similar substance for swords, knives, and now surgical instruments, all these needs constituting standards external to metallurgy, all have had their effect in the advancement of the art.

When Dewey says, ". . . the instrumentalities were not self-applying. They were used;" he reveals the artificiality of his use of the term external. He is, in reality, demanding an external cause which remains external and yet produces internal changes. The words, "It was the result of their use, their failure and success in accomplishing *ends* and effecting *consequences* that provided the final *criterion* of the value," are especially revealing. It is as though Dewey should insist that nothing external to the compass causes the needle to point to the magnetic north. Is not the distinction between north and south actually inside the compass! Perhaps the magnetism may come from outside, but it is "used" by the needle.

Dewey constantly uses normative terms, terms referring to norms which lie outside the inquiry process to which he has reference. Although he prefers "warranted assertibility" to "knowledge", yet he says, "That which satisfactorily terminates inquiry is, by definition, knowledge; it is knowledge because it *is* the appropriate close of inquiry."[246] Later, on the same page he says, "Knowledge, as an abstract term, is a name for the product of competent inquiry." And again on the following page, "When knowledge is taken as a general abstract term related to inquiry in the abstract, it means 'warranted assertibility'."

When one searches for a definition of the words "satisfactorily", "appropriate", "competent", "warrantable", the search is not rewarded by any definitive analysis.

After the introduction of the term "warrantable assertibility", Dewey brings forward the word "reason", but hastening to eliminate the older meaning of the term, he says

> The idea of *reason* as the power which intuitively apprehends *a priori* ultimate first principles persists in logical philosophy. Whether explicitly affirmed or not, it is the ground of every view which holds that scientific method is dependent upon logical forms that are logically prior and external to inquiry. The original ground for this conception of reason has now been destroyed. This ground was the necessity for postulating a faculty that had the power of direct apprehension of "truths" that were axiomatic in the sense of being self-evident, or self-verifying, and self-contained, as the necessary grounds of all demonstrative reasoning.[247]

The objection to "self-verifying" axioms is somewhat difficult to understand in view of the fact that scientific methods are held to be "self-rectifying,"[248] and postulates are described in the words

> The greatest freedom is permitted, or rather encouraged, in laying down postulates — a freedom subject only to the condition that they be rigorously *fruitful* of implied consequences.[249]

Dewey says

> Rationality as an abstract conception is precisely the generalized idea of the means-consequence relation as such. Hence, from this point of view, the descriptive statement of methods that achieve progressively stable beliefs, or warranted assertibility, is also *a rational* statement in case the relation between them as means and assertibility as consequence is ascertained.[250]

This type of writing is relatively frequent in Dewey's work. The first sentence in the quoted block is a simple case of neology. Rationality in English usage and in the Latin language from which the word is derived, has never meant "the generalized idea of the means-consequence relation." The words expressing that idea are causality or instrumentality. When anyone asserts "the reason is the cause," *"ratio est causa",* he is understood to be giving a synthetic, not an analytic, judgment.

The second sentence is filled with rather typical syntactical ambiguities. For example, what is the subject of the verb "is"? And what is the antecedent of the pronoun "them"? I believe that "assertibility" is *not* the subject of the verb "is" although it is the nearest noun which could be so construed. "Warranted assertibility" stands in apposition to the words, "stable beliefs" and the subject of the verb "is" is probably the word "statement". If this be correct, then Dewey is saying that "From the point of view which has assumed that rationality is the correct term for the means-consequence idea, the statement of methods that achieve progressively stable beliefs, or the statement of methods that achieve warranted assertibility, is also a rational statement. This assertion is qualified, however, by the condition that the relation between the methods which achieve progressively stable beliefs or methods which achieve warranted assertibility,—the relation between these methods as means, and the assertibility of the consequences of this means, must be ascertained if we are permitted to say that the descriptive statement of methods is also a rational statement".

As a student of hermeneutics, I believe that I have unravelled such meaning as there is in these two sentences and that I have correctly construed the syntax thereof. But what Dewey has said is merely that under certain circumstances a descriptive statement of methods is to be defined as a rational statement, a case of neology, as I have said. The geometry of Lobachewsky was rational *before* any descriptive statement could be made about it in relation to methods later applied by Einstein. Similarly the formula of Einstein was rational *before* any descriptive statement of methods could be given by the military.

With regard to the science of physics, Dewey says

> Mathematical formulae have now taken the place in physics once occupied by propositions about eternal essences and the fixed species defined by these essences. The formulae are deductively developed by means of rules of implication. But the value of the deduced result for physical science is not determined by correctness of the deduction.[251]

It would seem that Dewey had not kept posted on physics. According to what seem to be reliable reports, Einstein gave the physicists of the army a mathematical formula by which they were able to do something, not as yet made public, in the realm of nuclear physics. One imagines that the residents of Hiroshima would have been glad if the mathematical formula had taken the place of the ontologically existing atoms used in the explosive bomb. Physicists in general have no such notions.

As to "eternal essences and fixed species" it is true that until very recently physicists supposed that the elements were not transmutable, but the notion itself that the elements are not transmutable, was relatively modern, recent physics having in a strange way confirmed the notion of the transmutation of elements held by the medieval alchemists.

The sentence telling us that "value of the deduced result for physical science is not determined by the correctness of the deduction" of the "mathematical formulae" is mysterious. One who had not read enough of Dewey to know that he is not very well posted on modern physics, might have supposed that this sentence has some very profound meaning, but obviously this is not the case. The statement that the value of mathematical formulae is not determined by their correctness, is simply a mistake. If the formulae are not correct, the chances are they are worthless. Probably what this sentence really means is that Dewey is entirely unwilling to admit the *a priori* character of mathematical formulae such as Einstein is said to have given to the military.

Dewey illustrates the first principles in mathematics with the first principles in logic. He says

> The character of the generalization of the relation of "first principles" and conclusions (in mathematical and physical science) may be illustrated by the meaning of first principles in logic; such as traditionally represented by the principles, say, of identity, contradiction and excluded middle.[252]

Rejecting the notion that logical first principles are in any way *a priori,* Dewey argues

> According to the view here expressed, they [first principles in logic] represent conditions which have been ascertained during the conduct of continued inquiry to be involved in its own successful pursuit ... [This] position implies, as has already been stated, that the principles are generated in the very process of control of continued inquiry, while according to the other view, they are *a priori* principles fixed antecedently to inquiry and conditioning it *ab extra.*[253]

Apart from the fact that these words repeat Dewey's point of view as frequently given elsewhere, it should be noted that in this context the word "ascertained" and the word "generated" are interchangeable. This confusion of terms is characteristic throughout the book. Not only are the two words different in their denotation, but the connotations of the two terms are mutually exclusive. That which is ascertained in a process cannot correctly be described as being generated at the same time and in the same sense.

A very interesting passage on the function of habit in logic occurs on pages 12-14 in Dewey's Introductory Chapter. He begins the section with the words, "In what is said upon this matter I follow in the main the account given by Peirce of 'guiding' or 'leading' principles". He concludes this section with a footnote which reads, "As has been indicated, the above account is a free rendering of Peirce. See particularly his *Collected Papers* Vol. III, pp. 154-168, and Vol. V, pp. 365-370."[254]

Dewey here says

> Neither the existence nor the indispensability of primary logical principles is, then, denied. The question concerns their origin and use. . . . Peirce illustrates the narrower type of habit by the following case: A person has seen a rotating disk of copper come to rest when it is placed between magnets. He infers that another piece of copper will behave similarly under like conditions. At first such inferences are made without formulation of a principle. The disposition that operates is limited in scope. It does not extend beyond pieces of copper. But when it is found that there are habits involved in *every* inference, in spite of differences of subject matter, and when these habits are noted and formulated, then the formulations are guiding or leading principles. . . . When it [habit] is formulated it becomes, as far as it is accepted, a rule, or more generally, a principle or "law" of action. . . . These guiding logical principles are not *premises* of inference or argument. They are conditions to be satisfied such that knowledge of them provides a principle of direction and of testing.[255]

It must be noted here that Dewey is discussing the "origin" of logical principles. He states that the "formulations" of habit *are* these "leading principles". When a habit is "formulated" the habit "becomes" a law of logic. These "guiding logical principles are *not premises* of inference."

Now when one turns to Peirce's material, he does indeed find an interesting study in the formation of habits of logical thought.[256] A footnote[257] quotes Peirce's corrections as follows: "The manuscript left my hands in April last before I had seen several important publications—Mr. McColl's third paper, and Wundt's *Logik,* etc."

Peirce's discussion of habit follows the brain track or nerve track theory which was prevalent at the time and indicates familiarity with the then current literature in psychology. He begins the section from which Dewey is drawing material.[258]

> In order to gain a clear understanding of the origin of the various signs used in logical algebra and the reasons of the

> fundamental formulae, we ought to begin by considering how logic itself arises.

By this he means the origin of logic in the course of human history. After a discussion of habit and brain track or nerve track psychology, Peirce says

> . . . fresh peripheral excitations are also continually creating new belief-habits. Thus, belief is partly determined by old beliefs and partly by new experience. Is there any law about the mode of the peripheral excitations? The logician maintains that there is, namely, that they are all adapted to an end, that of carrying belief, in the long run, toward certain predestinated conclusions which are the same for all men. This is the faith of the logician. This is the matter of fact, upon which all maxims of reasoning repose. In virtue of this fact, what is to be believed at last is independent of what has been believed hitherto, and therefore has the character of *reality*.[259]
>
> . . . The habit is logically good provided it would never (or in the case of a probable inference, seldom) lead from a true premise to a false conclusion; otherwise it is logically bad.[260]
>
> A logical principle is said to be an *empty* or merely formal proposition, because it can add nothing to the premises of the argument it governs, although it is relevant; so that it implies no fact except such as is presupposed in all discourse . . . We may here distinguish between *logical* and *extralogical* validity . . . The *logical leading principle* we may take to mean the principle which must be supposed true in order to sustain the logical validity of any argument. . . . *logical leading principle* . . . is . . . perfectly determinate and not vague, as we have seen an extralogical leading principle to be.[261]

From these words it is evident that Peirce's position is diametrically opposed to that which Dewey advances. Nothing could be farther from Peirce's view than Dewey's statement to the effect that logical principles are *produced by* the process of inquiry. Note especially Peirce's statement that there is a "law", —all peripheral excitations being "adapted to an end, that of carrying belief, in the long run, toward certain predestinate conclusions which are the same for all men." Note also Peirce's reference to the independence of fact and belief, and the logically formal and empty character of logical principles as contrasted with extralogical principles.

The illustration of the revolving copper disk cited by Dewey is found in Vol. V of Peirce's *Collected Writings* [not page] paragraph 367, p. 228. But the use which Peirce makes of this illustration is quite different from Dewey's. Peirce says in his first paragraph under the heading "Guiding Principles"[262]

> The object of reasoning is to find out, from the consideration of what we already know, something else which we do not know. . . . Thus, the question of reasoning is purely one of fact and not thinking. . . . It is true that we do generally reason correctly by nature. But that is an accident; the true conclusion would remain true if we had no impulse to accept it; and the false one would remain false though we could not resist the tendency to believe it.

That Peirce here diametrically contradicts Dewey's opinion which Dewey thinks he is deriving from Peirce, is so obvious as to need no further commentary.

Dewey continues to illustrate his point

> The craftsman, for example, learns that if he operates in a certain *way* the result will take care of itself, certain materials being given. In like fashion, we discover that if we draw our inferences in a certain way, we shall, other things being equal, get dependable conclusions.[263]

These words are quite acceptable, but for the fact that Dewey does not realize that there is any difference between the discovering of logical methods and generating or producing such methods. In fact, these words last quoted from Dewey would be acceptable to most dualists, except those who hold to self-evident truths known intuitively, or known by some process other than empirical induction. Some realistic dualists would not agree; though the class of dualists holding this latter opinion is indeed more numerous than the class rejecting it. The writer has not discovered any opinion of any other person to the effect that (1) mathematical and logical principles are ontologically *a priori* empty possibilities and that (2) such principles are learned by induction so that they are held as probability judgments. However, it must be made clear that from the point of view of this thesis, no exception is taken to those unconfused passages in which Dewey objects to self-evident truths, or indicates that we *discover* the fundamental principles of logic.

Again Dewey explains his position

> The position taken implies the ultimacy of inquiry in determination of the formal conditions of inquiry. Logic as inquiry into inquiry . . . does not depend upon anything extraneous to inquiry . . . this proposition . . . precludes the determination and selection of logical first principles by an *a priori* intuitional act . . . It precludes resting logic upon metaphysical and epistemological assumptions and presuppositions. The latter are to be determined, if at all, by means of what is disclosed as the outcome of inquiry; they are not to be shoved under inquiry as its "foundation". . . .
>
> The autonomy of logic also precludes the idea that its "foundations" are psychological.[264]

This quoted passage contains several noteworthy features. First of all, Tennant's thesis that logic, epistemology and all other sciences are founded in psychology, is bluntly denied.[265] In place of Tennant's first fact, "so-called knowledge of so-called objects by so-called subjects", Dewey would substitute, "inquiry in process". This passage also illustrates again the confusion between "determination of the formal conditions," and "what is disclosed" in the process of inquiry. Indeed, disclosure is not quite as contradictory of determination as discovery is contradictory of generation or production, but the terms indicate the same confused unconscious contradiction.

The discussion of Dewey's *Logic* up to this point has been based upon Chapter One, entitled "The Problem of Logical Subject-Matter." It will be impossible within reasonable compass to give the entire work the same minute attention. For purposes of economy of space I shall next present illustrative passages in which Dewey sets forth his conception of the ontological status of the fundamental principles of logic, such passages being scattered through the book.

Toward the end of the second chapter on "The Existential

Matrix of Inquiry" Dewey makes an interesting distinction in three types of relationships. (1) Relations between symbols as such he designates *relations* proper. (2) Relations between symbols and existences he designates as *references,* (3) Relations between existences he calls *connections.* There follows the statement that:

> The final test of *valid* reference or applicability resides in the *connections* that exist among things. Existential involvement of things with one another alone warrants inference so as to enable further connections among things themselves to be discovered.[266]

And later at the very end of the same chapter he says

> Because of the superior status assigned to forms of rational discourse, they were isolated from the operations by means of which meanings originate, function and are tested. This isolation was equivalent to the hypostization [sic][267] of Reason.[268]

These two passages give Dewey's negative attitude toward logical principles but seem to swing toward the side of physical realism. It will be shown later, however, that the "existences" which are said to have "connections" are not recognized as ontologically existing material objects but only as events in the process of inquiry.

In his chapter on "The Needed Reform of Logic," the last chapter in Part I, and still under the general heading, "The Matrix of Inquiry," Dewey seeks to assimilate the syllogism to his own views of epistemology. He argues with regard to the middle term of a syllogism that

> It is indispensable in reasoning not because of any peculiar property of "thought" but because of the inherent connections in nature which bind "subjects" together and prevent their mingling.[269]

A little later he continues, in speaking of "subjects"

> . . . no consistency of theory can be attained as long as the theory of antecedent subjects given ready-made to predication is retained.
>
> [He continues in a footnote] Some specific instances of this confusion will be pointed out later. The underlying logical point at issue is not the *special* Aristotelian conception of sub-

> stance, but the idea that *any* kind of subject, such as "this" or a sense datum, can be given ready-made to predication.[270]

The former of these two passages seems to lean toward a realistic ontology of "subjects" but the latter explains away any such tendency.

Dewey begins his chapter entitled "The Pattern of Inquiry," the first chapter in Part II, which is entitled "The Structure of Inquiry and the Construction of Judgments" with the words

> The first chapter set forth the fundamental thesis of this volume: Logical forms accrue to subject-matter when the latter is subjected to controlled inquiry.[271]

He continues to illustrate the fact that "new formal properties accrue to subject-matter in virtue of its subjection to certain types of operation" by reference to art and law. In the former field he says

> . . . subject-matters of everyday experience are *trans*formed by the development of forms which render certain products of doing and making objects of fine art.[272]

Of the field of law he says

> . . . formal conceptions arise out of the ordinary transactions; they are not imposed upon them from on high or from any external and *a priori* source. But when they are formed they are also *formative;* they regulate the proper conduct of the activities out of which they develop.[273]

These passages are of course within the constructive side of Dewey's theory of logic. Probably no school of philosophy would take exception to the fact that in art, in law, in sociology, and in many fields of human activity, "new formal properties accrue to subject-matter" in the process of inquiry and as a result of the process of inquiry, with no *a priori* or *ab extra* elements involved. It is only when Dewey insists that there are no *a priori* nor *ab extra* elements whatsoever that objection should be made. There are values in human life which law protects but which law does not create. There are aesthetic values which art discovers, and which were there to be discovered before the practice of art began.

A little later in the same chapter Dewey argues

> Everybody knows that today there are in vogue methods of

> farming generally followed in the past which compare very unfavorably in their results with those obtained by practices that have already been introduced and tested. When an expert tells a farmer he *should* do thus and so, he is not setting up for a bad farmer an ideal drawn from the blue. He is instructing him in methods that have been tried and that have proved successful in procuring results. [Dewey then applies the illustration to the laws of logic and continues.] It does not follow in any of these cases that the "better" methods are . . . regulative or "normative." . . .They are the methods which experience up to the present time shows to be the best methods available for achieving certain results, while abstraction of these methods does supply a (relative) norm or standard for further undertakings.[274]

Excellent material indeed for the *a priori* standards of that which is "better" and that "relative" to which the temporary norms have their value.

The chapter entitled "Immediate Knowledge: Understanding and Inference," within Part II, on "The Structure of Inquiry," begins with the statement

> The considerations adduced in discussion of the pattern of inquiry and of the structure of judgment, entail the conclusion that all knowledge as grounded assertion involves mediation. Mediation, in this context, means that an inferential function is involved in all warranted assertion. The position here defended runs counter to the belief that there is such a thing as immediate knowledge, and that such knowledge is an indispensable precondition of all mediated knowledge . . .
>
> Logical schools as opposed to each other as are the rationalistic and the empiristic agree in accepting the doctrine of immediate knowledge. On this point they differ only with respect to the objects and organs of such knowledge. Rationalist schools hold that ultimate principles of a universal character are the objects of immediate knowledge and that reason is the organ of their apprehension. Empiristic schools believe that sense-perception is the organ of knowledge and that the things immediately known are sensory qualities or,

> as they are now more usually called, sense-data. Some logical theories maintain that both kinds of immediate knowledge exist and that mediation and inferential knowledge result from the union of the two; a union in which *a priori* first truths and empirical material are brought into connection with each other.[275]

The type of dualistic realism defended in this thesis heartily accepts Dewey's statement that "an inferential function is involved in all warranted assertion." Self-evident truths are rejected on the ground that self-evidence implies evidence to a human intelligence, and evidence unanalyzable in any other terms. It seems rather obvious that the so-called self-evident truths are not evident to many human intelligences, and furthermore it can be demonstrated that all such self-evident truths are analyzable in terms of other data.

To illustrate, the principle of integration (not differing materially from, but richer and more fruitful than, the theories of consistency and coherence) names integration as a broad and general criterion of truth and knowledge. That is supposed to be true which integrates with the known or assumed structure of truth without contradiction. That is supposed to be untrue which contradicts the main body of assumed truth.

However, the principle of integration is not assumed as self-evident truth, incapable of analysis. The integrationist is ready to investigate the question whether integration is indeed a criterion, and to face the alternative of a non-integrated or contradictory world. Of course, every such examination of the principle of integration, the integrationist believes, is likely to result in the conclusion that integration is probably always a criterion of truth.

The integrationist does not assume that the body of so-called knowledge hitherto accepted, is necessarily unalterable or is in itself an infallible criterion. The integrationist only holds that in all probability the main structures of so-called truth which have been accepted and acted upon fruitfully, and which do not include inherent contradictions, are very probably reliable for the future.

For these reasons it is not suggested here that exception should be taken to the main teaching in Dewey's chapter which begins with the quotation given above.

Still in Part II of Dewey's *Logic,* the chapter entitled "Judgments of Practice: Evaluation" contains two references one of which seems to contradict and one of which reiterates Dewey's oft-repeated thesis. He says

> All controlled inquiry and all institution of grounded assertion necessarily contains a *practical* factor; an activity of doing and making which reshapes antecedent existential material which sets the problem of inquiry. That this view is not assumed *ad hoc* but represents what certainly occurs (or is a *vera causa*) in at least *some* cases, will be shown by considering some forms of common sense inquiry which aim at determining what is to be done in some practical predicament.[276]

Here Dewey, in the words "antecedent existential material," has inadvertently admitted the *a priori.* This is not his general opinion.

He also says

> . . . the idea that propositions are factors in determining the very subject-matter they are *about* is exactly what is to be expected instead of being paradoxical.[277]

In his chapter entitled "Affirmation and Negation: Judgment as Requalification," which is within the general subject of Part II, "The Structure of Inquiry," Dewey constantly speaks as though assuming the ontological priority of logical principles and of ontological material existences. He discusses the "square of opposition"[278] in a perfectly normal way with reference to its ontological implications. He says

> . . . the field of possible propositions must be bounded or else inquiry will roam all over the lot. This delimitation is effected by means of contrary general propositions.[279]
>
> Nevertheless, the institution of opposites in hypothetical form, *when interpreted as a means of fixing the limits within which determinate disjunctive alternatives fall,* is a necessary preparatory logical procedure.[280]
>
> Formally speaking, it is certainly true that the proposition

> "all men are white" is contradicted if a single case of a colored person is observed, while the proposition "No men are red" was negated as soon as the first North American Indian was encountered.[281]
>
> Nothing is more important in inquiry than institution of contradictory propositions. Since one must be valid and the other invalid, they are determinate in a way in which contraries and subcontraries are not.[282]

The last quotation, however, is deliberately taken out of its setting for purposes of emphasis. It is strangely introduced by the sentence

> The logic of the contradictory relation of propositions thus affords a crowning proof of the functional and operative import of affirmative-negative propositions.

And it is followed by the words

> But if the traditional theory were sound, inquiry would have to stop right there. There would be no ground upon which to decide which one of the two is valid and which is invalid.

What writer in "the traditional theory" ever held that the *a priori* character of logical principles is a block to progress of experimental or inductive data!

Under the sub-heading, "Quantity and Measurement," Dewey inadvertently assumes that ". . . non-existential propositions, (such as all triangles have the sum of their angles equal to [two] right angles) . . . when valid, are *necessary* propositions . . ." But a little later under this same heading he vigorously attacks the idea of standards of "intrinsic" value.

He shows his lack of familiarity with economic theory in the following words:

> In economics it has been a fairly common assumption that gold is a standard measure of the value of other things because of its own "intrinsic" value. This idea appears almost always when paper money is denied the capacity to serve as a standard. Instead of a comparison of the capacity of gold and paper money to serve as standards on the ground of actual consequences operationally produced by their re-

> spective applications in determining exchange, an alleged absolute or "intrinsic" value in the case of gold is appealed to.[283]

Now Dewey seems unconscious of the fact that when economists refer to the "intrinsic" value of gold, they are consciously shifting ground from "exchange value" to "utility value." It seems perfectly obvious to the economist that gold, a non-corrosive, highly malleable metal regarded by most people as ornamentally attractive, will always be desired for human use. Paper, of course, will always be useful, but no one thinks the utility value of a dollar bill of any particular consequence.

Dewey advocates complete disregard of utility or "intrinsic" value in forming an opinion of the best mode of exchange, and instead he would make the criterion "a comparison of the capacity of gold and paper money to serve as standards on the ground of actual consequences operationally produced . . ." But by Dewey's method, all kinds of materials ought to be tried out. If there is no such thing as "intrinsic" or utility value *a priori* before any material is used as a basis of exchange, human society would be required to try out cloth, sand, water, air, and all manner of items before coming to any conclusions. This would create confusion, and destroy economic stability. The history of economics, including the history of the barter system, shows that items with high utility or "intrinsic" value, also function effectively as units of exchange.

Economists realize, moreover, that "credit" which may be represented by paper or even verbal promises, if well established in a given society, is highly useful as a basis of exchange, and avoids many of the disadvantages of a material substance like gold. The fact that paper may be used for exchange would be an amazing absurdity if it were not for the "intrinsic" value of the credit which the paper merely represents. Economic theory of exchange seems to be beyond Dewey's field of knowledge.

Some would even suggest that Dewey might not have cared for economic stability, any more than he cared for logical or ontological stability. It is hard to believe that he did not know that paper as paper has never served as a medium of economic exchange.

Dewey next proceeds to point out the very obvious fact that our units of measurement "yard and mile, ounce and pound, gill and gallon are conceptual meanings . . . related to one another on socio-historic ground." From this he leaps to the surprising statement that

> It should be pointed out, by way at least of anticipation, that, according to the principle expounded, space and time are in science not *what* we measure but are themselves results of measurements of objects and events, in the interest of objective determination of problematic situations.[284]

This can only mean something to the effect that there was no space prior to the time (but there was no time either) when the first fisherman measured the length of his biggest fish![285] To such lengths Dewey goes in seeking to rid logic of all *a priori* norms.

But Dewey does not really mean what he says,—"Space and time are . . . themselves the results of measurements of objects and events." On page 246 in his chapter on "The Continuum of Judgment" he says

> There is no such thing as an instantaneous inquiry; and there is, in consequence, no such thing as a judgment (the conclusion of inquiry) which is isolated from what goes before and comes after. The meaning of this thesis is not to be confused with the trivial, because external, fact that it takes time to form a judgment. What is affirmed is that inquiry, which yields to judgment, is itself a process of temporal transition effected in existential materials.

Putting together the statements quoted above from pages 217 and 246, the least critical opinion to which the reader could come is that Dewey is confused in his own definitions of time and space. A more critical conclusion might be justified, namely that in his zeal to establish instrumentalistic epistemology, he exhibits outright irresponsibility toward matters which are of the greatest importance to his opponents. It does not seem to concern him in the least whether he is consistent in his definitions and usages of such terms as time and space.

On pages 256, 262 and 263 there are at least eight references to "necessary" logical relationships, references in the most familiar and ordinary style, which are completely unintelligible unless the *a priori* character of logical principles is assumed. Neither Dewey nor anyone else can write extensively without assuming the prior quality of logical principles. Examples might be multiplied manifold, as when Dewey uses such phrases as "logically impossible, because involving contradictions . . .",[286] "the emergence of contradictions, as in *reductio ad absurdum,* is proof . . ." [287] As Dewey progresses more deeply into the subject matter of logic, the examples of inadvertent appeal to the *a priori* increase in frequency.

Nevertheless, on occasion, and with no discoverable rational cause, Dewey sharply reverts to the denial of such *a priori* principles. For example, he says

> . . . some hold the doctrine that forms constitute a realm of metaphysical possibilities . . . the opposed type of logical theory holds that forms are forms-of-matter. The differential trait of the variety of this type of theory expounded in this book is that logical forms accrue to subject-matter in virtue of subjection of the latter in inquiry to the conditions determined by its end—institution of a warranted conclusion.[288]

It is thus apparent that Dewey regards his own philosophy as a sub-division, or "variety" of a general division or "type" of logical theory. The type is composed of those theories that hold that "forms are forms-of-matter"; the variety is the theory that "forms accrue to subject-matter" in the process of inquiry.

It should be remembered that when Dewey uses the word "matter" in such a context, he does not refer to the matter of the materialist or of the dualist,—matter as an ontologically existing space-occupying movable entity. It might seem a bit tricky for him to shift from the statement that "forms are forms-of-matter" to the statement that "forms accrue to subject-matter," but Dewey means a type of matter which can be regarded as mere subject-matter. The reader should recall his statement in the preface (page iv) to the effect that he hopes for the "development of a general theory of language in which form and matter are not separated."

The high point in Dewey's opposition to the prior character of the ordinary laws of reason is probably found in the following paragraph

> The view most current at the present time is probably that which regards propositions as the unitary material of logical theory. Propositions upon this view have their defining property in the property of formal truth-falsity. According to the position here taken, propositions are to be differentiated and identified on the ground of the function of their contents as *means,* procedural and material, further distinctions of forms of propositions being instituted on the ground of the special ways in which their respective characteristic subject-matters function as means. The latter point is the main theme of this chapter. But at this point it is pertinent to note that, since means as such are neither true nor false, truth-falsity is *not* a property of propositions. Means are either effective or ineffective; pertinent or irrelevant; wasteful or economical, the criterion for the difference being found in the consequences with which they are connected as means. On this basis special propositions are *valid* (strong, effective) or *invalid* (weak, inadequate); loose or rigorous, etc.[289]

This paragraph of Dewey's is found in his chapter on "General Theory of Propositions."

When Dewey says that propositions are neither true nor false but strong and effective, or weak and inadequate, it must be remembered that he has ruled out all *a priori* criteria by which even these supposedly directional terms could be measured.

I have up to this point, presented studies of considerably less than half of the epistemological passages on which I have made special notations; passages, I mean, in which Dewey refers affirmatively or negatively (prevailingly negatively) to prior or *a priori* logical principles. The sheer bulk of the material and notations which I have accumulated is, indeed, surprising to myself as I proceed to reduce it to discursive form. It will be impossible within the compass of one thesis of this kind to present my entire accumulation of data.

I have given rather detailed analyses of a considerable number of passages. To revert to the illustration of oceanographical exploration with which I introduced the study of Dewey's *Logic,* a relatively small number of borings and samplings, if carefully analyzed, may be sufficient for rather broad generalizations. In the record of the expedition to which I have referred above, one sampling from a core bit from a considerable depth showed beach sand. The scientists inferred that it must be from the foot of a hitherto unknown suboceanic mountain. Within a relatively short time the mountain was discovered!

On this analogy I believe that Dewey's epistemological passages of which studies have hitherto been presented, are sufficient for such generalizations and conclusions as are relevant to this thesis, —sufficient, I mean, for the purpose of comparing Dewey's epistemology with Tennant's, in the general horizon of empirical philosophy within which both systems are found.

Although the place for conclusions is in the final portion of this thesis, it is appropriate at this point to suggest certain preliminary or tentative conclusions and comparisons: Tennant's epistemology always assumes the prior reliability and validity of the abstract laws of mathematics and logic, or what have been called in this thesis the empty possibilities of mathematical and logical relationships. Tennant does not raise the questions as to whether these laws are *a priori* or not. He takes the usual attitude of scientific men in appealing to such laws or principles *as a matter of course.*

Tennant does not call the laws of rational thinking self-evident truths, neither does he suggest that they are learned by inductive processes, as they may be found to be. There is nothing in his system of philosophy opposed to either of these two views. He does hold that such laws can be known with *complete certainty,* for which might be substituted only the *highest probability.*

With the ordinary laws of rational and mathematical thinking assumed as always dependable, come what may, Tennant moves forward to the construction of a system of orderly truth. The truths which he believes to be demonstrable are not "fixed" or "immutable" or "independent" or subject to any of the great list of "approbrious" terms which Dewey sometimes indiscriminately heaps upon his adversaries' convictions. Tennant's philosophy of truth and knowledge is by no means static. There are no "great gulfs" of impassable isolation. His thoughts are integrated. Tennant's system of truth and knowledge has a kind of dynamic onward-moving stability and orderliness. Progress in thought is genuinely possible because there are points of reference all the way down through the system, from the abstract principles of logic to the most reasonable empirical conclusions.

On the other hand, Dewey's epistemology is characterized by an attempt—unsuccessful and contradictory, perhaps, but a vigorous attempt, nevertheless,—to get rid of all definite and specifiable points of reference. By "definite and specifiable" I do not mean "fixed", and "immutable". I mean that the empty possibilities of mathematical and logical relationships, the laws of number, time, space, identity, contrariety, excluded middle, in the abstract, are always true and were always true *a priori* before any process of human inquiry began.[290]

Dewey's attitude toward rational points of reference is typical of a popular trend in our generation. There are serious-minded men who have not had the time or opportunity to investigate the matter, who have been persuaded that relativity has destroyed the laws of logic. There are some who have, nevertheless, seriously endeavored to defend, protect, and develop rational processes in a constructive manner. I have quoted Daniel Lamont in his reference to the "crack" in the universe, and have indicated his earnest desire to hold the universe together as well as possible. With such views as his, the point of view of the writer is in sharp disagreement. Relativity has not destroyed logic, there is not a "crack" in the universe in the sense in which Lamont refers to it. But one who *wants* orderly progress must admire his constructive attitude.

Dewey's attitude toward such problems is of a different nature. When he refers, as quoted above, to the irrationality of Euclid[291] he does so with evident *satisfaction*. Over and over again, and the cases can be multiplied far beyond the material which I have discussed, he speaks with scorn of the infallible truthfulness of truth, and with gratification, of the breaking down of orderly standards.

The spirit of Dewey's philosophy was well illustrated in a meeting of educators held at Columbia University in November 1947. Dewey was present at the afternoon session. At both the afternoon and evening sessions Boyd Henry Bode was honored. Speaker after speaker in varying terminology referred to the naturalistic *assumption* that this is an open universe in the sense that "Nobody knows the answers". The words "Nobody knows the answers" could well be translated "Nobody *wants* any certainties".

Professor Childs in the evening session propounded the question, what naturalists would do if, in the process of inquiry, they should ever discover anything true. The question was evidently intended to be merely provocative, for the notion of reliable truth in the sense of permanent truth is repugnant to the essentials of the system of Dewey's epistemology, and of naturalism in general.

Both Tennant's and Dewey's epistemologies are characterized by strong emphasis upon the future; but there is a radical difference. Tennant's teleology leaves room for a dynamic and progressive eschatology and an ultimate resolution of the problem of evil. Dewey has no teleology and, of course, no eschatology. The problem of evil is only created by a misconception which Dewey removes. In the meeting of naturalists above referred to, Professor Childs seemed to be voicing the sentiments of the gathering when he said that it is a basic assumption of naturalism that "there is no cosmic teleology". By this, Professor Childs meant what Dewey means by his emphasis upon the future, namely that man is working out his own destiny in his own way with *no standards whatsoever to go by.*

I have indicated at several points that Dewey's workmanship is characterized by carelessness.

The following illustration may seem trivial, but I cannot avoid the feeling that it is derived from and deeply rooted in Dewey's contempt for the very laws of truth. Four times he seeks to illustrate "proposition" by reference to kinds of triangles. On page 306 he uses the words "the proposition that triangles are equilateral, scalene or right-angles [Sic] is not of the same form as the proposition that metals are either tin, zinc, iron, mercury . . ." But obviously "isosceles" instead of "right-angles", taken with the other two terms, would give the kind of proposition which he seeks to present. On page 340 he classes together "the characters of right-angularity, equilateralness and scaleness [probably he intended scaleneness]". Here again right-angularity is not a correlate of the other two terms. "The quality of being isosceles" is obviously what he should have said.

On page 341 Dewey says, "When it is affirmed that triangularity is either right-angular, scalene or isosceles . . .", he includes the term isosceles omitted in the other two passages, but here, clearly, "equilateral" should be substituted for "right-angular". The series "right-angled, scalene and isosceles" appears again on page 361, where "equilateral" should again be substituted for "right-angled". He never gives a complete classification of triangles according to their angles, namely, right-angled, acute, or obtuse; he never gives a complete classification of triangles according to their lines —equilateral, isosceles, or scalene.

The word carelessness has been used in referring to details. Is Dewey's carelessness in epistemology representative of a certain trend in current philosophy toward irresponsibility? At a recent conference on the teaching of philosophy, held at New York University, a paper by a Mr. Beardsley from Yale expressed the opinion that the chief function of a freshman course in philosophy is to unsettle such convictions as the students may have. One was reminded of the reactions of a two-year-old in a high chair throwing his oatmeal around. Such psychology is amusing in a two-year-old.

Some months ago a section of shops in the city were wrecked by juvenile delinquents. Older persons were amazed at the delight exhibited by the children and teen-agers as they went forward with their work of vandalism. It all seemed so pointless and purposeless. Are we then defending the *status quo,* arguing that such shops should remain "fixed" and "immutable" forever? By no means.

A good and useful building belonging to a nearby hospital is now in the process of being wrecked. Neighbors have watched with interest the great swinging iron hammer as the crane draws it back, and then hurls it against the brick walls. But none of the sober citizens of the community are incensed at this demolition. It is understood that a more serviceable building is to be erected in its place.

Future historians of philosophy may be forced to conclude that Dewey's epistemology is not a system of genuine progress through constructive change. All down the line from Aristotle through Newton, Peirce, Bridgman, and Einstein, great thinkers are misconstrued with careless irresponsibility.

The value of Dewey's one constructive epistemological emphasis, knowing by doing, must not be minimized. In this he was not original. Even this great principle he distorted, by denying all other criteria of knowledge. Dewey's epistemology is mainly negative and essentially disintegrative.

1—John Dewey, *Logic, the Theory of Inquiry*, Henry Holt & Co., 1938.

2—He has written numerous articles since his *Logic* was published, some of them, such as his article on the ego in William James' *Psychology*, of outstanding value, but his books published since 1938 are largely composed of reprints of articles written earlier.

3—*The Origin of Dewey's Instrumentalism*, by Morton G. White, Columbia University Press, 1943, p. 148.

4.—*Logic*, Preface, p. iii.

5—John Dewey, *The Quest for Certainty*, London, George Allen & Unwin, 1930.

6—Op. cit, pp. 7 f.

7—Ibid., p. 31.

8—My next paragraph and the following quotation from Randall I used in another connection in *The Bible Today* for May, 1948, Vol. XLI, No. 8, p. 231.

9—Dewey's *Logic*, p. 130. Dewey gives a footnote reference: "Aristotle, *Metaphysics*, 1063 a, Ross' translation."

10—Bohn edition, p. 292 f.

11—Ross' translation, 1062b, McKeon edition, p. 857.

12—Loc. cit., p. 858.

13—The copy from which I am here working is found in *The Basic Works of Aristotle*, edited by Richard McKeon, Random House, 1941. Italics are mine. McKeon (Preface p. x) says, "Grateful acknowledgment is hereby extended to the Oxford University Press for permission to reprint the translation of the works of Aristotle prepared under the editorship of W. D. Ross." The earlier edition of Ross' translation is identical with the later edition in the words which Dewey has changed.

14—*Quest for Certainty*, p. 34.

15—Ibid., p. 13.

16—Ibid., pp. 12 f.

17—Ibid., pp. 37 f.

18—Ibid., p. 19.

19—Ibid., p. 20.

20—Ibid, p. 20.

21—Kroeber's 1948 edition which has just come to my attention, gives the following significant addition:

> It has only recently become clear that zero as a position numeral was invented a third time, and that the earliest of all. This was in Mesopotamia, among the Semitic neo-Babylonians, centuries before either Hindus or Mayas. These people reckoned sexagesimally: 60 was their unit of next higher order, instead of 10 or 20. . . . The idiosyncrasy of this system is enough to assure the historical separateness of the Mesopotamian invention. (p. 469).

This third occurrence of the zero symbol in a system of numerals quite independent of the other two, strengthens the impression that these occurrences were *discoveries* of prior logical possibilities.

22—A. L. Kroeber, *Anthropology*, Harcourt, Brace and Company, 1923, pp. 229 ff.

23—Ibid., pp. 25 f.

24—Ibid., p. 24.

25—Ibid., p. 26.

26—Ibid., p. 27.

27—Ibid., p. 28.

28—I John 1:1-3.

29—Ibid., p. 30.

30—Ibid., p. 38, footnote.

31—Ibid., p. 39. Italics here, as elsewhere, unless otherwise specified, are that of the original of the material quoted.

32—Dewey's *Logic*, Preface, p. iv.

33—*Experience and Nature, in loco*. See discussion in Chapter VI.

34—*Quest for Certainty*, pp. 41 f.

35—Ibid., pp. 43 f.

36—Ibid., p. 44.

37—The word, "immutable", in this connection might correctly be laid to the charge of idealistic rationalists, but certainly has no application to "the most influential and authoritatively orthodox tradition." That tradition has always held that truth, beauty and goodness are dynamic and progressive. Probably Dewey simply threw in the word "immutable" as an expletive.

38—Ibid., p. 45.

39—Ibid., p. 45.

40—Ibid., p. 48.

41—Ibid., p. 48.

42—*The Nature of Thought*, Vol. I, Chapter 10.

43—Endorsed by Dewey.

44—Ibid., p. 27.
45—Ibid., p. 50.
46—Ibid., p. 71.
47—Ibid., p. 42.
48—Ibid., p. 50.
49—Ibid., p. 51.
50—Ibid., p. 53.
51—Ibid., p. 54.

52—The outline is not clear and very likely some types which I have counted as main headings would be regarded as sub-headings by other readers of this work.

53—Ibid., p. 57.
54—Ibid., p. 62.
55—Ibid., p. 63.
56—Ibid., p. 69.

57—Ibid., p. 69. Dewey, indeed, would be a modern anti-theistic Samson to avenge the Philistines. He finds himself between two great pillars, the *a priori* abstract laws of logic, and the *a priori* concrete brute facts of the world. In order to destroy the theistic imperative, he feign would pull down these two pillars which support the entire edifice of historical knowledge.

58—Ibid., p. 72.
59—Ibid., p. 72.
60—Ibid., p. 93.
61—Ibid., p. 74.
62—Ibid., p. 76.
63—Ibid., p. 77.
64—Ibid., p. 82.
65—Ibid., p. 82.
66—Ibid., p. 83.
67—Ibid., p. 84 f.

68—I refer to the prevalent trend toward more lecture demonstration in the teaching of chemistry. See, for example, discussion of this method (which is not at all related to the St. John's plan) in *The Chicago Plan*, by Dean Chauncy Samuel Boucher, University of Chicago Press, 1935. Similar methods are used at Columbia University.

69—Ibid., p. 85. Italics not in the original.
70—Ibid., p. 86 f.
71—Ibid., pp. 98 f.
72—Ibid., pp. 127 f.

73—I remember my grandfather telling me when I was a boy that in his young manhood an older man had told him that it was perfectly inconceivable that the next ten years then to come could produce as many mechanical inventions as the ten years then past had produced.

74—Ibid., p. 91.

75—Ibid., p. 95. The words in quotation marks are from Barry, *The Scientific Habit of Mind*, New York, 1927, p. 249.

76—Ibid., pp. 92 f.

77—See Dewey's discussion, Ibid., p. 103.

78—Ibid., p. 94.

79—Ibid., pp. 124 f.

80—Ibid., p. 96. Dewey adds in a footnote, "For this shift from objects to data see G. H. Mead's essay in the volume entitled *Creative Intelligence*, New York, 1917."

81—Ibid., p. 102.

82—Ibid., pp. 96 f.

83—Ibid., p. 97.

84—John Dewey, *Democracy and Education,* Macmillan, 1916, p. 377, etc.

85—*Quest for Certainty*, pp. 170 f. See also Ibid., p. 96.

86—*The American Naturalist*, Vol. LXXIX, No. 780., Jan. and Feb. 1945, p. 75.

87—Ibid., p. 106.

88—Ibid., p. 106.

89—Ibid., pp. 106 f.

90—Quoted by Dewey, *Quest for Certainty,* p. 107.

91—Quoted by Dewey, *Quest for Certainty,* p. 108.

92—Quoted by Dewey, Ibid., p. 125, from *The Nature of the Physical World,* pp. 152 and 257.

93—Ibid., p. 125.

94—Ibid., p. 126.

95—Ibid., p. 126.

96—Ibid., p. 108, footnote.

97—Bridgman, Op. cit., pp. 2 f.

98—Ibid., pp. 4 f.

99—Cajori, Op. cit., p. 11. The word in square brackets is so printed in the Cajori edition. Elsewhere, square brackets in quoted material indicate words inserted by the writer of this thesis.

100—Ibid., pp. 108 f.

101—Ibid., p. 109.

102—Ibid., p. 110.

103—Ibid., p. 111.

104—Ibid., p. 111.

105—Ibid., pp. 111 f.

106—Florian Cajori, late professor emeritus of The History of Mathematics, University of California, *Sir Isaac Newton's Mathematical Principles of Natural Philosophy and His System of the World,* translated into English by Andrew Motte in 1729. The translation revised, and supplemented with an historical and explanatory appendix by Florian Cajori. University of California Press, 1934, reprinted 1946. Appendix, (p. 671, note 55 to p. 547).

107—Cajori, Op. cit., p. 671.

108—*Quest for Certainty,* p. 112.

109—That is, if there were *but one* such instance, instead of the constantly recurring instances of daily experience.

110—Op. cit., p. 399.

111—*Quest for Certainty.* pp. 113f.

112—Ibid., p. 114.

113—Ibid., p. 124.

114—Ibid., p. 133.

115—Ibid., p. 136.

116—Ibid., p. 137.

117—Ibid., p. 138.

118—Ibid., p. 137.

119—Newton's *Principia*, Cajori Edition, p. 11. The word in [ ] is given thus in Cajori's text.

120—Op. cit., p. 138.

121—"Rules of Reasoning in Philosophy", Rule III, Paragraph I, Cajori Edition, p. 399.

122—Ibid., pp. 139f. See the article entitled "A Note on the Theory of Relativity" by R. W. Sellars in the *Journal of Philosophy*, June 6, 1946, Vol. XLIII, No. 12.

123—Albert Einstein, *The Meaning of Relativity*, Princeton University Press, Published 1922, Second Edition 1946, p. 55. "For this second edition, Mr. Einstein has added an appendix discussing certain advances in the theory of relativity since 1921." The material quoted is not changed in the third edition of 1950.

124—Ibid., pp. 30f.

125—Ibid., pp. 28f.

126—*Quest for Certainty*, p. 151.

127—Einstein, Op. cit., p. 7.

128—Ibid., p. 8.

129—Op. cit., p. 141.

130—Appendix B, pp. 133-147.

131—Ibid., p. 157.

132—Ibid., p. 144.

133—Ibid., p. 145.

134—Ibid., p. 152.

135—Ibid., pp. 153f. Italics, except for the words "may" and "to one another", not in the original.

136—Ibid., p. 154.

137—Ibid., p. 155.

138—Ibid., pp. 156f.

139—Ibid., p. 141.

140—Ibid., p. 149.

141—Ibid., p. 156.

142—Ibid., p. 158.

143—Ibid., p. 159.

144—Ibid., pp. 160f.

145—Ibid., p. 164.

146—Ibid., p. 183.

147—Ibid., p. 184.

148—Ibid., pp. 184f.

149—Ibid., p. 180.

150—Ibid., p. 171.
151—Ibid., p. 150.
152—Ibid., p. 164.
153—Ibid., p. 173.
154—Ibid., p. 164.
155—Ibid., p. 165.
156—Ibid., p. 174.
157—Ibid., p. 177.
158—Ibid., pp. 26f.

159—A. S. Eddington, *The Nature of the Physical World*, pp. 220ff, 306, Macmillan, 1929, Gifford Lectures for 1927.

160—*Quest for Certainty*, p. 193.
161—Ibid., p. 192.
162—Ibid., pp. 204f.

163—Even the people in the grandstand have an effect upon the game.

164—Ibid., p. 200.
165—Loc. cit.
166—Ibid., p. 221.
167—Ibid., p. 193.
168—Op. cit., Appendix p. 677.
169—Loc. cit.
170—Loc. cit.
171—Op. cit., p. 193.
172—Ibid., p. 194.
173—Ibid., p. 238.
174—Op. cit., pp. 226f.
175—Ibid., p. 221.
176—Op. cit., p. 194.
177—Ibid., p. 195.
178—Op. cit., p. 217, pp. 219f.
179—Op. cit., p. 196.
180—Ibid., pp. 196f.
181—Ibid., p. 198.
182—Ibid., p. 199.
183—Ibid., pp. 208f.
184—Ibid., pp. 213f.
185—Ibid., p. 216.

186—These three *a priori* negatives referred to are: (1) The denial of the substantive mind, (2) The denial of the substantive world, and (3) The denial of the *a priori* discoverable character of the empty possibilities known as the laws of mathematics and logic.

187—Ibid., p. 219. When Dewey says, "Its only assumption is that something is done," the reader must remember that he means that something is done by nothing to nothing. He is more accurate when he says, "Something is doing."

188—Ibid., p. 219.
189—Ibid., p. 219.

190—The force of the criticism here given is recognized in part by Professor Schneider and forms the basis of his chapter, surprisingly entitled, "The Un-Natural" in *Naturalism and the Human Spirit.*

191—This definition of the term, nature, is given by Randall and Buchler, in their *Philosophy, an Introduction,* Barnes & Noble, 1942, p. 177. With these words, the authors very easily define the supernatural out of existence. See Ibid., p. 170, 244 etc.

192—Ibid., p. 222.

193—Ibid., p. 223.

194—*Quest for Certainty,* p. 261.

195—Ibid., pp. 226f.

196—Ibid., p. 229.

197—Ibid., p. 231.

198—Ibid., p. 233.

199—Ibid., p. 27.

200—Ibid., p. 244.

201—Ibid., p. 246.

202—Ibid., p. 247.

203—Ibid., p. 248.

204—Ibid., p. 250.

205—Ibid., p. 251.

206—Ibid., p. 252.

207—Quotation is from the definition in the unabridged second edition of Webster's dictionary. For the Cyrenaic and Epicurean systems of hedonism, as well as the later forms of universalistic hedonism, such as Utilitarianism, see Henry Sidwick, *History of Ethics,* Macmillan, Fifth Edition, 1902, Reprint 1922, pp. 32, 82f, 204, 224, 236-250, etc.

208—Dewey criticizes utilitarianism in his *Democracy and Education* (pp. 405f) and discusses it at length in his *Human Nature and Conduct* (pp. 50, 189, 199, 209, 211, 221f, 291). He strongly takes exception to the identifying of ethical "deliberation" with the "calculus" developed by some of the utilitarians. (Ibid., p. 199). He says, "Utilitarianism illustrates another way of mistreating the situation. Tendency is not good enough for the utilitarians. They want a mathematical equation of act and consequence." (Ibid., p. 50).

209—John S. Mackenzie, *Manual of Ethics,* Noble & Noble, 1925, pp. 212f.

210—Ibid., pp. 258f.

211—Ibid., p. 261.

212—Ibid., p. 263.

213—Ibid., pp. 263f.

214—Ibid., p. 264.

215—Ibid., p. 265.

216—Ibid., p. 271.

217—Ibid., p. 275.

218—Ibid., p. 277.

219—Ibid., p. 209.

220—Ibid., p. 279.

221—Ibid., p. 282.
222—Ibid., p. 280.
223—Ibid., p. 282.
224—Ibid., p. 281.
225—Ibid., p. 282.
226—Ibid., p. 286.
227—Ibid., p. 288.
228—Ibid., pp. 288f.
229—Ibid., p. 289.
230—Ibid., p. 289.

231—See the article, "Exploring the Mid-Atlantic Ridge" by Maurice Ewing, in the *National Geographic Magazine*, Vol. XCIV, No. 3, Sept., 1948, and "New Discoveries on the Mid-Atlantic Ridge" by Ewing and Sisson in Vol. XCVI No. 5, November 1949.

232—*Logic*, p. iii.
233—Loc. cit.
234—Ibid., p. iv.
235—Dewey's *Logic*, p. 1.
236—Ibid., p. 2.
237—Ibid., p. 3.
238—Ibid., p. 3.
239—Ibid., p. 3f.
240—Ibid., p. 3f.
241—Ibid., p. 4.
242—Ibid., p. 4.
243—Ibid., p. 4.
244—Ibid., p. 5.
245—Ibid., p. 6.
246—Ibid., p. 8.
247—Ibid., p. 10.
248—Ibid., p. 6.
249—Ibid., p. 10. Italics not in the original.
250—Ibid., p. 10.

251—Ibid., p. 11. I understand "eternal essences" etc. to refer to the 19th century view of atoms and molecules as ontological existents.

252—Ibid., p. 11.
253—Ibid., pp. 11f.

254—The figures in this reference to Peirce's *Collected Papers* indicate paragraphs not pages.

255—Ibid., pp. 12, 13.

256—Charles Sanders Peirce, *Collected Papers*, Harvard University Press, 1933, Vol. III, *Exact Logic*, paragraphs 154-168 (not pp. as in Dewey's *Logic*, p. 14) taken from an article by Peirce in the *American Journal of Mathematics*, Vol. III, pp. 15-57 (1880).

257—Ibid., p. 104.
258—Ibid., paragraph 154, p. 104.
259—Ibid., paragraph 161, p. 106.
260—Ibid., paragraph 163, p. 107.

261—Ibid., paragraph 168, p. 109.

262—Ibid., paragraph 365, p. 226.

263—*Logic*, p. 12. See also the same usage of the word, "discovered", Ibid., p. 16.

264—Ibid., p. 20f.

265—Without reference to Tennant, of course.

266—Ibid., p. 55.

267—The word "hypostatization" is spelled without the third syllable twice on p. 58 and several times elsewhere. I can find no warrant for such spelling, and assume it to be an error. See pp. 132, 171, 177, 178, 215, 530.

268—Ibid., p. 58.

269—Ibid., p. 85.

270—Ibid., p. 91.

271—Ibid., p. 101.

272—Ibid., p. 101.

273—Ibid., p. 102.

274—Ibid., p. 104.

275—Ibid., p. 139.

276—Ibid., p. 160.

277—Ibid., p. 178f.

278—Ibid., p. 182.

279—Ibid., p. 191.

280—Ibid., p. 192.

281—Ibid., p. 195. The capitalization of material within the quotation marks is in Dewey's original.

282—Ibid., p. 197.

283—Ibid., p. 216.

284—Ibid., p. 217.

285—In Chapter Two of this thesis I have discussed the definitions of space and time. As, respectively, the mere empty possibility of relationships in sequence, and the mere empty possibility of relationships in dimensions.

286—Ibid., p. 300.

287—Ibid., p. 301.

288—Ibid., pp. 371f.

289—Ibid., p. 287.

290—Sufficient has been said in the process of the discussion of Dewey's and Tennant's epistemology to show that the theory of relativity in the physical world, when properly understood, is by no means contrary to the *a priori* truth of truth in the abstract. "Curved space", if such a term is to be used, would have no meaning whatsoever except as the processes of discourse imply *also* the abstract conceptions of non-curved space.

291—It has been shown that his reference is due to his misunderstanding of Einstein.

CHAPTER VI

DEWEY'S METAPHYSICS

By way of introduction it seems advisable to cut into the vast field of Dewey's ontology by an examination of an article entitled "Naturalism and the Concept of Matter" by Professor A. Campbell Garnett of the University of Wisconsin, in the *Journal of Philosophy* for August 26, 1948.[1] Professor Garnett writes strictly within the horizon of the naturalism which takes its rise in our current situation in America from John Dewey's philosophy, and which is expressed in the volume *Naturalism and the Human Spirit.*[2] Garnett reviews an apparent contradiction which appeared within the pages of this volume. He points out that Professor Randall takes strong ground against nineteenth century materialism while Professors Nagel and Edel give expression to naturalism in terms which seem to endorse materialism. I have heard Professor Edel and Professor Hook at different times in papers read by them in meetings of the Eastern Division of the American Philosophical Association since the publication of *Naturalism and the Human Spirit,* take definite materialistic grounds. Those who have followed the controversy developing out of this book will remember that Professor Sheldon of Yale, in an article entitled "Critique of Naturalism"[3] charged the authors of the book with materialism. To this Professors Dewey, Hook and Nagel replied in an article entitled "Are Naturalists Materialists?"[4] Professor Garnett gives a convenient review of the outstanding points in this controversy. The article by Dewey, Hook and Nagel sought to distinguish between two different kinds of materialism. "Reductive materialism" they defined as the theory which maintains "that every psychological term is synonymous with, or has the same meaning as, some expression or combination of expressions belonging to the class of physical terms." The second type of materialism which they did not name, but which might be called "emergentistic materialism," they say, "maintains that the occurrence of a mental event is contingent upon the occurrence of certain complex physico-chemico-physiological events and structures." They further state that "minds are adjectival or adverbial of bodies."

Garnett interprets these words as meaning

> . . . that the necessary *and sufficient* conditions of the occurrence of mental states and events are to be found in physico-chemico-physiological events and structures. For it is a first principle of that scientific method to which all naturalists claim to adhere that philosophy shall entertain no hypothesis which is not a *vera causa,* i.e., *supported by good analogy.*[5]

For interpretation of the term *vera causa,* in addition to his own words "supported by good analogy," Garnett refers to page 3 of Dewey's *Logic* which has been quoted above, in which Dewey gives an elaborate interpretation of the term.

Garnett fails to point out that the sentiments which he has quoted from the article by Dewey, Hook and Nagel are not opinions commonly found in Dewey's individual writings. The writer has not found, in fact, that Dewey anywhere commits himself to such opinions. He is consistently, and has been from the beginning of his philosophical career, opposed to materialism. As an idealist, and subsequent to his abandonment of idealism, Dewey has used the terms which materialists and dualists employ to refer to material objects. But he is found frequently explaining that he does not accept an actual distinction or dualism between ideas and that which is designated by these so-called materialistic terms. No doubt Dewey consented to the use of his name in connection with the article, construing the materialistic terms in his own mind in his usual anti-materialistic sense, but the notion that "the occurrence of a mental event is contingent upon the occurrence of certain complex physico-chemico-physiological events and structures," and that "minds are adjectival or adverbial of bodies," especially when the words are taken in the context of Nagel's and Hook's other expressions, are quite contrary to Dewey's metaphysics.

It is not certain that Garnett is justified in using the words "sufficient conditions" in his interpretation of the opinions of even Nagel and Hook. True, they said that mental events are "contingent" upon material events, but although it is very difficult to find precision in the writings of the emergentistic materialistic naturalists, their emergentism leads them, generally, by implication at least, to deny the principle of sufficient cause, or the principle of *"sufficient conditions."* I have heard Professor Hook argue most vigorously against the notion that "from nothing nothing comes." Further, it is not clear that the requirement that "philosophy shall entertain no hypothesis which is not a *vera causa,* i.e., supported by good analogy," is truly applicable to the opinions of Nagel and Hook and the others whom Garnett classes as "neo-materialists." Their emergentism is perfectly capable of leaping through the *nth* dimension completely regardless of "necessary and sufficient conditions" and the principle of *"vera causa."*

Nevertheless, Garnett has successfully shown that the distinction made between "reductionistic materialism" and so-called "neo-materialism" is "a distinction without a difference,"[6] one which will not stand up to examination. If mental events are "contingent" upon material objects and "minds are adjectival or adverbial of bodies," then either this *is* reductionism, or there is no such thing as reductionism.

There have been numerous attempts to defend the alleged distinction in philosophical discussions. Hook and Nagel, for example, argue that water is not contained in hydrogen and oxygen; but neither is heat as such contained in coal nor is the new position of any physical body which is moved from one place to another, *contained in* the "causes." No physicist has ever observed any such reductionism in any known process. Whenever anything is changed in any way whatsoever, there are always elements in the changed condition which were not in the previously existing situation, otherwise there would be no change.

The writers of *Naturalism and the Human Spirit* frequently explain the "reductionism" which they reject by the words "nothing but":—the fire in the furnace is "nothing but" the heat which existed previously in coal. But it must be noted that the words "nothing but" are mere rhetorical words and can not be taken as an accurate expression. There is no change which is "nothing but" what existed before. That which is literally "nothing but" is only the numerically identical. Reductionism has no meaning unless it be identified with the principle of sufficient causality, or the notion of being completely "accounted for by" the "causes" referred to. Such a meaning is certainly suggested by the words "the occurrence of a mental event is contingent upon the occurrence" of material events.

The same conclusion is legitimately drawn from the words "minds are adjectival or adverbial of bodies." This is, indeed, a strikingly original form of expression but its meaning is clear and capable of elaboration:—My *mental* body sits at the dictaphone and *mentally composes* sentences. But this sounds radically like reductionism. There is "nothing but" my body, mental as it may be, and mentally as it may act. Perhaps the materialistic naturalist might wish to reconsider and substitute "participial" for the words "adjectival or adverbial." This would be more definitely expressive of Dewey's ontology. In such case the elaboration of their doctrine would be somewhat as follows:—My body *minding,* sits at the dictaphone *composing* sentences. But here again there is "nothing but" my body.

Garnett concludes this point

> The Naturalist, therefore, if he is true to scientific method, must either return to reductionism (which would be philosophical suicide) or surrender his quasi-materialism.[7]

Garnett continues the next step in his argument

> The second horn of this dilemma, however, should not prove as unacceptable as at first it might seem. It will not be necessary to resort to a psycho-physical dualism of substances in order to do justice to the distinction of mental and physical. The duality is merely one of process . . .[8]

In the last quoted words, Garnett has returned squarely to the center of Dewey's metaphysics. Neither minds nor bodies are substances in the sense of entities existing prior to the given inquiry process. Minds are not adjectival or adverbial of bodies any more than bodies are substantival of minds. The denial of the substantival is constantly reiterated, and without it, of course, the adjectival and adverbial have no meaning. The status of objects in Dewey's metaphysics is strictly participial.[9]

The remainder of Garnett's article is of interest as an illustration of a radical, though natural, departure from Dewey's metaphysics. Garnett has corrected a materialistic tendency which is contrary to Dewey, and has come back to identifying the mental and the physical with the concept of "process." Garnett continues, however, in a radically different vein. He completes the last sentence of the last above quotation from him in a way which Dewey would never have tolerated. The entire sentence is

> The duality is merely one of process—but of *processes which are irreducibly distinct.*[10]

Garnett's theory (which seems to be derived from C. D. Broad) is in brief that space itself is a kind of substance. He refers to

> . . . the set of tensions that we can refer to nothing other than the spatial field or medium itself. Space then is not non-being. . . . Physics has forced us to recognize that atoms do not move in a void, that space is real being, and extended field of activity, and that dynamic processes are changes in and of this extensive reality. Energy is space-time and space-time is space-activity.[11]

He argues that

> The body is not, of course, regarded as itself a substance. It, too, is adjectival, being an organized unity of "spatio-temporal objects." But what are the ultimate particular elements of which bodies are organized unities? If these ultimate particulars are *events* rather than substances (and, being ultimate, are not adjectival or adverbial to anything else), then may not the same be true of mental events? A mind may be an organization of mental events, as a body is an organization of physical events.[12]
>
> Why not recognize, therefore, that mental activity, e.g., what we are conscious of as an act of anticipation, is another kind of activity in and of the same field, another sort of space-activity? How the two forms of space-activity, physical and mental, are integrated, and how they are both related

> to the changing display of qualities in space, would then remain a matter for further empirical investigation.[13]

In other words, Garnett proposes *a new kind of ether substance to take care of everything!* He seems entirely unconscious of the neology of his usage of the word space, and he even claims that his theory "requires no unsupported metaphysical invention."[14]

This latter portion of his article, together with the materialistic departure which he criticizes in the earlier portion, may be taken as illustrations of the fact that philosophy will find it difficult to remain in the strictly instrumentalist or functionalist position of Dewey's metaphysics.

"Experience and Nature"

Although Dewey's metaphysics runs all through his writings, and the general aspects of his metaphysics were discussed in connection with his psychology and with his epistemology, his book *Experience and Nature*[15] is probably his most important work, the substance of which lies within the field of ontology. Within this book the most important, or the most essential passage for the purposes of this thesis, is

> That to which both mind and matter belong is the complex of events that constitute nature. This becomes a mysterious *tertium quid,* incapable of designation, only when mind and matter are taken to be static structures instead of functional characters. It is a plausible prediction that if there were an interdict placed for a generation upon the use of mind, matter, consciousness as nouns, and we were obliged to employ adjectives and adverbs, conscious and consciously, mental and mentally, material and physically, we should find many of our problems much simplified.[16]

Dewey has just rejected the notions that Spinoza advances.

> The idea that matter and mind are two sides or "aspects" of the same things, like the convex and the concave in a curve, is literally unthinkable. A curve is an intelligible object and concave and convex are defined in terms of this object; they are, indeed, but names for properties involved in its

> meaning. We do not start with convexity and concavity as two independent things and then set up an unknown *tertium quid* to unite two disparate things.[17]

The burden of this argument seems to be that matter and mind must not be distinguished even to the extent to which the convex and concave sides of a curve are distinguished. They are not "aspects" or, as in the former quotation, they are not "static structure" but they are "functional characters." They are mere "names for properties involved in its meaning." Thus he says

> Nothing but unfamiliarity stands in the way of thinking of both mind and matter as different characters of natural events . . .[19]

In the preface to the edition of 1929 Dewey says

> Philosophies have too often tried to forego the actual work that is involved in penetrating the true nature of experience, by setting up a purely *theoretical* security and certainty. The influence of this attempt upon the traditional philosophic preference for unity, permanence, universals, over plurality, change and particulars is pointed out, as well as its effect in creating the traditional notion of substance, now undermined by physical science. The tendency of modern science to substitute qualitative events, marked by certain similar properties and by recurrences, for the older notion of fixed substances is shown to agree with the attitudes of naïve experience, while both point to the idea of matter and mind as significant characters of events, presented in different contexts, rather than underlying and ultimate substances.[20]

This is in itself a very clear statement of the central position of Dewey's ontology. It is not necessary here to repeat the criticism of his handling of "modern science" which has been given in some detail in discussing his epistemology as found in his later works. Suffice it to say that the alleged "tendency of modern science to substitute qualitative events . . . for . . . substances," is not a true account of the facts, and the introduction of the word "fixed" in the phrase "the older notion of fixed substances" is a rhetorical device prejudicing the student against Dewey's opponents, but actually rendering the phrase inapplicable to any known "older notion" of science.

Most clear is the fact that both matter and mind are denied to be "substances". He continues in the immediate context to indicate that "nature" should be "viewed as consisting of events rather than substances".

There is a striking passage on page 11 of the 1929 edition which would seem to contradict not only the analysis of Dewey's ontology here given, but his entire anti-dualistic emphasis. He says

> . . . when objects are isolated from the experience through which they are reached and in which they function, experience itself becomes reduced to the mere process of experiencing, and experiencing is, therefore, treated as if it were also complete in itself. We get the absurdity of an experiencing which experiences only itself, states and processes of consciousness, instead of the things of nature. . . . Although breathing is in fact a function that includes both air and the operation of the lungs, we may detach the latter for study, even though we cannot separate it in fact.[21]

These sentences are not found in the edition of 1925. The examination of them in the context reveals that Dewey is not advancing the dualistic doctrine of "objects" as substances, but merely a terminological abstract differentiation. The object ontologically is still merely an experienc*ing,* and cannot be isolated as an object.

Dewey has much to say of the fixed and the real, the changing and the illusory. For example

> With slight exaggeration, it may be said that the thoroughgoing way in which Aristotle defined, distinguished and classified rest and movement, the finished and the incomplete, the actual and potential, did more to fix tradition, *the* genteel tradition one is tempted to add, which identifies the fixed and regular with reality of Being and the changing and hazardous with deficiency of Being than ever was accomplished by those who took the shorter path of asserting that change is illusory.[22]

Similar remarks are made on pp. 50, 51, 53f, 54, 57, 66f.

Dewey attacks the notion of regularity in change and glorifies the changeability of change. He says

> The Christian idea of this world and this life as a probation is a kind of distorted recognition of the situation; distorted because it applied wholesale to one stretch of existence in contrast with another, regarded as original and final.[23]

Of matter and spirit he says

> The "matter" of materialists and the "spirit" of idealists is a creature similar to the constitution of the United States in the minds of unimaginative persons. Obviously the real constitution is certain basic relationships among the activities of the citizens of the country; it is a property or phase of these processes, so connected with them as to influence their rate and direction of change.
>
> . . . what we call matter is that character of natural events which is so tied up with changes that are sufficiently rapid to be perceptible as to give the latter a characteristic rhythmic order, the causal sequence. It is no cause or source of events or processes; no absolute monarch; no principle of explanation; no substance behind or underlying changes—save in that sense of substance in which a man well fortified with this world's goods, and hence able to maintain himself through vicissitudes of surroundings, is a man of substance. The name designates a character in operation, not an entity.[24]

This is familiar ground and introduces the noteworthy passage quoted above in which Dewey expresses the wish that nouns might be abolished. He continues

> Whatever influences the changes of other things is itself changed. The idea of an activity proceeding only in one direction, of an unmoved mover, is a survival of Greek physics. It has been banished from science, but remains to haunt philosophy.[25]

With the last quoted sentences Protestant philosophy is in general agreement. It is not Calvinism or Lutheranism but Thomism, which typically advocates the doctrine of the unmoved mover. And yet Thomas Aquinas is by no means consistent in supporting this self-contradictory view.

With reference to the principle of causation, Dewey has an interesting opinion which corresponds to one which Hume rejected and which Charles Hodge accepted, as has been shown in connection with the discussion of Tennant's epistemology. Dewey says

> Extraordinary and subtle reasons have been assigned for belief in the principle of causation. Labor and the use of tools seem, however, to be a sufficient empirical reason; indeed, to be the only empirical events that can be specifically pointed to in this connection. They are more adequate grounds for acceptance of belief in causality than are the regular sequences of nature or than a category of reason, or the alleged fact of will.[26]

But it is difficult to see why, after having referred so confidently to "labor and the use of tools", Dewey should scoff at the notion of "will" as though it were a falsely "alleged fact". If Dewey should see a few pounds of earth flying up out of a ditch he would doubtless consider it reasonable to *infer* the existence of laborer and a shovel. That would be empirical. But observing a laborer and a shovel, he refuses to make the reasonable inference to the fact of will. This characteristic of Dewey's metaphysics was discussed in connection with his psychology. It is the point in which he "out-Jameses James".

At a later point he reverts to Hume's position and defines away any ontological status of causation, declaring against the concept of "an inherent generative force" and alleging that causality "consists in the sequential order itself".[27]

In discussing a point in esthetics, Dewey chances to use the word "efficacy". Lest this should be thought to have an ontological reference, and such a thought here seems quite irrelevant, he adds the following footnote:

> To avoid misapprehension it should perhaps be explicitly stated the term "efficacy" employed here and elsewhere, does not imply an interpretation in terms of the old theory of something engaged in emitting force. It is used purely denotatively; it designates empirical position in a course of affairs having a specifiable ending; its meaning is defined not by any theory, but by such affairs as that to get a fire, a

> match is applied and that it is applied not to a stone but to paper or shavings. The words agency, instrumentality, causal condition, which appear frequently in these pages are to be similarly translated.[28]

This is a rather extreme illustration of Dewey's negative metaphysics. Efficacy must be regarded as a functioning in discourse and not as an efficient cause in ontology.

Causality is interestingly discussed again in the words

> Analytic reflection shows that the ordinary conception of causation as a trait belonging to some one thing is the idea of responsibility read backward. The idea that some one thing or any two or three things, are *the* cause of an occurrence is in effect an application of the idea of credit or blame —as in the Greek *aitia* [Greek typography erroneous].[29]

Dewey in this work takes almost the Cyrenaic view of ethics rather than the Epicurean which he later adopted in his *Quest for Certainty.* He says

> Consider the utilitarians how they toiled, spun and wove, but who never saw man arrayed in joy as the lilies of the field. Happiness was to them a matter of calculation and effort, of industry guided by mathematical bookkeeping. The history of man shows however that man takes his enjoyment neat, and at as short range as possible.[30]
>
> To the empirical thinker, immediate enjoyment and suffering are the conclusive exhibition and evidence that nature has its finalities as well as its relationships.[31]

Of "better or worse" Dewey later says

> *Immediately* nothing is better or worse than anything else; it is just what it is. Comparison is comparison of things, things in their efficacies, their promotions and hindrances. The better is that which will do more in the way of security, liberation and fecundity for other likings and values.[32]

In scornfully opposing the notion of cosmic teleology Dewey says

> But choice is not arbitrary, not in a universe like this one, a world which is not finished and which has not consistently made up its mind where it is going and what it is going to do.

> Or, if we call it arbitrary, the arbitrariness is not ours but that of existence itself. And to call existence arbitrary or by any moral name, whether disparaging or honorific is to patronize nature.[33]
>
> But in a legitimate account of ends as endings, all directional order resides in the sequential order. This no more occurs for the sake of the end than a mountain exists for the sake of the peak which is its end.[34]

Again in opposition to all substantive existence Dewey says

> Matter has turned out to be nothing like as lumpy and chunky as unimaginative prejudice conceived it to be. But as compared with the changes of immediate qualities it seems in any case solid and substantial; a fact which accounts, I suppose, for the insertion of an immaterial sort of substance, after the analogy of matter-substance, underneath mental affairs.[35]

The following sentence, one of a thousand, is typical of Dewey's ontology:

> Convert the objects of knowledge into real things by themselves, and individuals become anomalous or unreal; they are not individualized for science but are instances, cases, specimens, of some generical relation or law.[36]

Objection is *not* made here to the functional relationship of things nor to the field or *Gestalt* relationships in which things are actually observed. Exception is taken only to Dewey's universal negative, ruling out the possibility of correctly (on occasion) regarding the objects of knowledge as "real things by themselves".

Dewey's attitude toward the science of history is a problem in itself, but he introduces that problem immediately after the remark concerning individual objects of knowledge quoted above. Claiming that the natural sciences deal with "instances, cases, specimens, of some generical relation or law", anything but individual existing objects, Dewey says that "morals" labor under difficulty of the supposition of "another kind of Being from that with which the natural sciences are concerned." And he continues

> History and anthropology are implicated in a similar predicament. The former has for subject-matter not only indi-

> vidual persons but unduplicated situations and events. The attempt to escape the dilemma by recourse to uniform and unilinear laws of sequence or "evolution" is inept; it contradicts the premises assumed, and is not borne out by facts [Sic]. Contemporary anthropologists have made clear the historical nature of the phenomena with which they deal. Cultures are in many respects individual or unique, and their manifestations are "explained" by correlations with one another and by borrowings due to chance contacts. The chief, even if not sole, law of their changes is that of transmission from other individualized cultures.[37]

Dewey here takes sides with Boas as against White in favor of transfer or change of cultural elements rather than pre-determined processes of cultural evolution.

Dewey's point here is, as he explains on page 149, that it is a great mistake to hold "the dogma which denies temporal quality to reality as such." He fails to distinguish this "dogma" from that of recognizing reality as *selbständig*. He continues

> It is no wonder that *Historismus* has become the preoccupying problem of a whole school of thinkers, many of whom now hold that the only attitude which can be taken toward historic situations and characters is non-intellectual, being esthetic appreciation, or sympathetic artistic rehabilitation.[38]

Dewey next proceeds to quote Windelband

> The theory which identifies knowledge with the beholding or grasp of self-sufficient objects reaches an impasse where it comes to deal with historical science in *contrast with physics*. Windelband justly draws the conclusion that Being and knowledge compel "antinomianism".[39] Certain problems inevitably force themselves upon us, but all efforts at solution are hopeless.[40]

Dewey does not agree with Windelband, but regards him as consistently pursuing false assumptions. He quotes in a footnote

> "It remains an unsolved problem why timeless reality needs realization in the temporal course of the event or why it tolerates in itself an event in the temporal course of which there is something that differs from its own nature. We do

> not understand why that which is also has nevertheless to happen; and still less why something different happens from that which is in itself without time." Introduction to Philosophy, English translation, p. 299.[41]

The opinions of Windelband, who is frankly an idealist, are not surprising; but Dewey takes such opinions as representing not only those who regard true reality as timeless but also as representing those who regard reality as *other* than its contemplation. Certainly there are outstanding historians of the most eminent achievements, who labor under the impression that they are dealing with actual facts, facts which of course are related in various patterns, —but facts which may, from certain points of view be regarded as *selbständig,* autonomous, and this view is not necessarily connected with any dogma of timeless reality.

In 1928 the University of Chicago Press published a small pamphlet entitled *Explication de Texte* by Robert Vigneron, which presented with excellent clarity the problem of the interpretation of literature in its historical setting. I sincerely regret that it is out of print, and being a small pamphlet, I do not find it available in the libraries. My personal copy has disappeared, and the publishers cannot replace it, hence I can make no direct quotation from it. However, it presented, from the point of view of the French universities, the historical approach to literature in a manner which would correct Dewey's historical obscurity.

Professor Harry Todd Costello in his chapter "The Naturalism of Frederick Woodbridge" in *Naturalism and the Human Spirit* says, in reference to Woodbridge and Dewey

> On another occasion I remember he [Woodbridge] said of Dewey, long his close friend and colleague: "I ask Dewey from time to time some simple questions, such as 'Is there not something about the past that never again changes?' Surely the state before change begins cannot itself also change". I said, "What did he answer?" "Answer!" Woodbridge replied, "Dewey defined and distinguished and qualified, in such a maze of dialectic, that not only I did not get any answer, I didn't even know where my question went to. And do you know, when he gets that way, he thinks he is being empirical."[42]

In connection with the discussion of time, Dewey teaches that

> Operatively speaking, the remote and the past are "in" behavior making it what it is. The action called "organic" is not just that of internal structures; it is an integration of organic-environmental connections. It may be a mystery that there should be thinking but it is no mystery that if there is thinking it should contain in a "present" phase, affairs remote in space and in time, even to geologic ages, future eclipses and far away stellar systems. It is only a question of how far what is "in" its actual experience is extricated and becomes focal.[43]

Dewey thus leaves no room for one to reason. (1) Socrates died heroically thus and so; (2) Such a death had such and such effects in the history of western culture; (3) These data are present educational values because they were actual past occurrences. These points as distinct steps are impossible, on Dewey's view. They imply the knowledge of past *reality* as *distinguishable* from present knowledge.

With reference to medieval Christianity Dewey says

> The scheme was logically complete; it carried out under new circumstances the old idea that the highest end and good of man is knowledge of true Being, and that such knowledge in the degree of its possession effects an assimilation of the mind to the reality known.[44]

Here, as elsewhere Dewey considers search for "knowledge of true Being," Being, as distinguishable from knowing, an unworthy end. In regard to the current situation in religious affairs, Dewey says

> . . . dialectically the modernist is easy prey to the traditionalist; he carries so many of the conceptions of the latter in his intellectual outfit that he is readily confuted. It is his practice not his theory that gets him ahead. His professed logic is still largely that of antecedent truths, demonstration and certitude; his practice is doubting, forming hypotheses, conducting experiments. When he surrenders antecedent truths of reason it is usually only to accept antecedent truths of sensation. . . . But in the practice of science, knowledge is an

> affair of *making* sure, not of grasping antecedently given sureties.[45]

The distortion involved in Dewey's use of the phrase "making sure" is obvious upon a moment's reflection. In actual practice when a scientist says that he wishes to "make sure" he means that he wishes to *get* the facts, not *make* the facts.

Dewey's words in regard to contemporary religious controversy are of the greatest significance. This is as much in the field of epistemology as ontology, but the fields are constantly mixed. If he could persuade the parties whom he calls "traditionalists" to abandon the search for prior existing ontological facts, historical and otherwise, traditionalism would disappear, of course, because by definition traditions would disappear. Otherwise Dewey's philosophy would be helpless against such implications of "certainty" as a sifting of historical fact might bring to light. He would have to answer Woodbridge's question (p. 456 above) with a positive "Yes, there is something about the past that never changes."

Replying to criticism, Dewey says

> Sometimes discovery is treated as a proof of the opposite of which it actually shows. It is viewed as evidence that the object of knowledge is already there in full-fledged Being and that we just run across it; we uncover it as treasure-hunters find a chest of buried gold. That there is existence antecedent to search and discovery is of course admitted; but it is denied that as such, as other than the conclusion of the historical event of inquiry in its connection with other histories, it is already the object of knowledge.[46]

This is not as sharp and clear as Dewey's reply to Bertrand Russell quoted above in which he said that he should consider it absurd to say anything or to make the slightest remark in regard to the existence of objects prior to inquiry. That reply to Russell was written in 1939. But the concession here in *Experience and Nature* (1925) is really not as great as appears on the surface. The "existence antecedent to search" is actually only "the conclusion of the . . . event of inquiry." Inquiry concludes to, *and produces,* a having-previously-been existence. This is like Kant's *grenzen Begriff.* I do not believe that Kant intended to say that noumena are ontologically causal, but only that they must be regarded in consciousness as causal. Similarly I do not believe that Dewey intended to admit the ontological *a priori* status of existences prior to the inquiry process, in the sense in which a dualist (and I think any competent lexicographer), would use the words.

As against idealism, Dewey says

> . . . an office of transformation was converted into an act of original and final creation. . . . In short, idealism is guilty of neglect [of the fact] that thought and knowledge are histories [i. e., themselves produced by the process of inquiry].
>
> To call action of thought in constituting objects direct is the same as to say that it is miraculous. For it is not thought as idealism defines thought which exercises the reconstructive function. Only action, interaction, can change or remake objects. . . . "Thought", reason, intelligence, whatever word we choose to use, is existentially an adjective (or better an adverb), not a noun. It is disposition of activity . . .[47]

The above words make it clear that Dewey is not an idealist. His philosophy is far nearer to idealism than to materialism, but the stuff of which the world is made is not idea, certainly not mind, the stuff of which the world is made is activity!

A rather remarkable *definition of truth* is given in the words

> . . . the *ultimate* objects of science are *guided* processes of change. Sometimes the use of the word "truth" is confined to designating a logical property of propositions; but if we extend its significance to designate character of existential reference, this is the meaning of truth: *processes of change so directed that they achieve an intended consummation.*[48]

In the book now under consideration, Dewey makes a great many statements in regard to the personal self, discussion of which is here omitted. They are essentially the same as material which has been presented in connection with his psychology and his epistemology. The following passage however is of special interest.

> Substitute "experience" for "house", and no other word need be changed. Experience when it happens has the same dependence upon objective natural events, physical and social, as has the occurrence of a house. It has its own objective and

> definitive traits; these can be described without reference to a self, precisely as a house is of brick, has eight rooms, etc., irrespective of whom it belongs to. . . .In first instance and intent, it is not exact nor relevant to say "I experience" or "I think." "It" experiences or is experienced, "it" thinks or is thought, is a juster phrase. Experience, a serial course of affairs with their own characteristic properties and relationships, occurs, happens, and is what it is. Among and within these occurrences, not outside of them nor underlying them, are those events which are denominated selves.[49]

But if experience is just like a house, where goes the house? The question of subject and object is significantly presented. Dewey says

> Taken absolutely the interpretation on the basis of opposition of subject and object has no advantage over the other doctrines; it is a local and provincial interpretation. Taken inherently or absolutely, it has an absurdity from which they [other doctrines] are free; for subject and object antithetically defined can have logically no transactions with each other. . . . Object is, . . . that which objects, that to which frustration is due. But it is also the object*ive;* the final and eventual consummation . . . The subject is that which suffers, is subjected and which endures resistance and frustration; it is also that which attempts subjection of hostile conditions; that which takes the immediate initiative in remaking the situation as it stands.[50]

It is difficult to comment upon the palpable absurdity of such remarks. Could it be possible that any reader of the book would not see that violence has been done to ordinary and accepted usage? What evidence could there be to substantiate the statement that "subject and object antithetically defined can have logically no transactions with each other"? The very word transaction implies the passage of action across an interval between polarities, which must necessarily be antithetically defined if they are to have any transactions. But here, as elsewhere, Dewey is completely blind to the fact that there must be differentiation in order that there may be any kind of transaction. He says

> The objection to dualism is not just that it is a dualism, but that it forces upon us antithetical, non-convertible principles of formulation and interpretation. If there is complete split in nature and experience . . . etc.[57]
>
> But philosophical dualism is but a formulated recognition of an impasse in life; an impotence in interaction, inability to make effective transition, limitation of power to regulate and thereby to understand.[52]

Dewey's anti-dualism goes to extremes. He says

> The difference between the animate plant and the inanimate iron molecule is not that the former has something in addition to physico-chemical energy; it lies in the *way* in which physico-chemical energies are inter-connected and operate, whence different *consequences* mark inanimate and animate activity respectively.[53]

Dewey gives "a formal definition of consciousness in relation to mind or meanings."

> Consciousness, an idea, is that phase of a system of meanings which at a given time is undergoing re-direction, transitive transformation.[54]

This is like defining the engineer's seeing by saying that it *is* the illumination of the headlight on the track in front of the locomotive. Consciousness is not a phase of a system of meanings. Consciousness is awareness *of* such "phase, undergoing re-direction" etc.

Consistent with his extreme anti-dualism, Dewey rejects the distinctive notion of sense perception. He says

> The current theory begins with a distinction between peripherally initiated and centrally initiated awareness. Peripheral initiation is the defining mark of such operations as are designated "perceptions". . . . The distinction is one made by analytic and classifying thought. This fact is enough to place in doubt the notion that some modes of consciousness are originally and intrinsically "sense-perception". . . . The theory that certain kinds or forms of consciousness intrinsically have an intellectual or cognitive reference to things present in space is merely the traditional theory that knowl-

> edge is immediate grasp of Being, clothed in the terminology of recent physiology.[55]
>
> . . . physiology and psychology merely afford a vocabulary with which to deck out an unconscionable survival.[56]

After defining philosophy as a type of criticism, Dewey raises the question

> If philosophy be criticism, what is to be said of the relation of philosophy to metaphysics? For metaphysics as a statement of the generic traits manifested by existences of all kinds without regard to their differentiation into physical and mental, seems to have nothing to do with criticism and choice, with an effective love of wisdom. [Yet he concludes] . . . Any theory that detects and defines these traits is . . . but a ground-map of the province of criticism, establishing base lines to be employed in more intricate triangulations.[57]

Throughout the book *Experience and Nature* Dewey makes occasional references to animism,[58] and always in a deprecatory manner. The only type of animism referred to is that of so-called primitive religions with the one exception of the first reference, in which he says

> It is a notorious fact that one who hates finds the one hated an obnoxious and despicable character; to the lover his adored one is full of intrinsically delightful and wonderful qualities. The connection, between such facts and the fact of animism is direct.[59]

In this passage it might be argued that Dewey is only referring to the fact of animistic views which he regards as erroneous. However, I believe he refers to the animistic character of experience itself as a fact.

Dewey has one direct reference to animism in his *Art as Experience*.[60] He says

> We do not need to feel, therefore, that we are speaking metaphorically nor apologize for animism when we speak of a painting as alive, and its figures, as well as architectural and sculptural forms, as manifesting movement. . . . the children in Renoir's paintings are intent upon their reading or sewing. . . . in Courbet a glen drips and rocks shine with cool

> wetness. . . . Paintings that seem dead in whole or part are those in which intervals merely arrest, instead of also carrying forward.[61]

With such passages in mind I wrote to Professor Dewey in December 1946

> I should like to ask a question concerning your views on animism . . . [I should have said philosophical animism, since it is clear of course that Dewey does not hold to the literal animistic practices of primitive religions]. I recently read your *Art as Experience* immediately following a re-reading of the chapter on *"Gestalt"* by Frederick Sander of Giessen in *Philosophies of* 1930. Sander's chapter impresses me now as being strongly animistic, though I had not realized this quality when I read it some years ago. Coming from this material to your *Art As Experience* I was impressed with a tendency toward animism. This impression became very strong before I noted your rather cryptic reference to animism on page 177.
>
>> [Hartman in his chapter on "Field Theory" in the Forty First Year Book of the National Society for the Study of Education[62] characterizes Dewey's *Art As Experience* as "rich in organismic overtones."]
>
> In your *Experience and Nature* you refer to animism on page 12 and 179f. In the latter reference you reject that type of animism in which man as over against nature speaks to nature. In other references which I have noted up to the present time, you seem to favor a type of animism, similar to hylozoism, in which nature includes man. This tendency seems to come to the surface more and more as I continue reading your works.
>
> Now my question is, can you conveniently refer me to some passage or passages in your works in which you have discussed animism more explicitly? Or would you be willing to give me a statement of your views on the subject which I might quote in a thesis?

To this Professor Dewey very kindly replied

> [Handwritten letter received December 10, 1946] 1158 Fifth Ave., N. Y. 29, Dec. 8/46
>
> Dear Mr. Buswell: Rec'd yours just as I am leaving for Fla. for the winter.
>
> I can't give you any references to animism of my own. In the Ency. of the Social Sciences (Macmillans) Vol. I you will find an article on animism by Dr. R. Benedict which I would regard as authoritative. It is correct that I regard man as *within* nature, not set over against. And I hold that no adequate philosophy can be formed without taking into account man's participation in nature, and the contribution to physical and physiological aspects of nature by that contribution. [*] I would not call it animism or hylozoism, however. It is *human behavior as human* and as *activity* that makes the contribution. In my recent collection of articles *Problems of Men* you will find, beginning on p. 193 an article "Nature in Experience" which contains a general statement of my position. Sincerely yours, John Dewey
>
> * [Probably means "by that participation"]

In the reference in *Problems of Men* which he gives in his letter, he states his usual position, —man, a part of nature, not over against nature.

In the article by Professor Ruth Benedict, to which Dewey refers, there is material justifying my use of the word animism. She says, with reference to "our present-day dichotomy of behavior . . . toward things . . . toward persons . . . , animism considered as behavior . . . is only the expression of a state of mind that has not made our distinction between behavior toward persons and behavior toward things . . ." In the definition of animism in the second unabridged edition of Webster's dictionary, there is a sentence reading, "Sometimes this animism is given a philosophical form in the ascription of life to nature as a whole."

Of course, since Dewey objects to calling his dynamic views animism, one cannot insist upon that word. He certainly has the general vitalistic attitude of ancient hylozoism and modern Holism.

With these references to animism, or vitalism, it is appropriate to make the transition from the study of his *Experience and Nature* to his *Art as Experience.*[63]

"Art As Experience"

This study is concerned not with the book as a whole, but with Dewey's metaphysical doctrines revealed therein. Arguments might be advanced to show that esthetics is a part of metaphysics. Such a position would lead to a far more extensive study of this work than is here contemplated. *Art as Experience* is indeed one of the most, if not the most, readable of Dewey's many writings. It is generally characterized by lucidity and consistency. The publisher's statement on the cover flap, "... it gives what is perhaps the best balanced account of the Dewey philosophy of experience ..." is justified.

However it seems necessary, in a more or less arbitrary manner, to take the position in this thesis that esthetics is not a part of metaphysics. I shall present therefore only those passages in which Dewey's discussion of art has bearing, or throws light, upon his metaphysical doctrine outside the field of esthetics.

As indicated above, one of the most striking features of the book is its vitalistic or organismic assumptions. If Dewey had not declared against animism and hylozoism, one would say that the work is characterized by philosophical animism. However, the term vitalism, at least, can be thoroughly justified. It is difficult to establish this general characteristic of the work by the selection of particular quotations. There are a few, however, which will make the matter clear. The wholistic[64] characteristics are revealed in the following passages

> Mountain peaks do not float unsupported; they do not even just rest upon the earth. They *are* the earth in one of its manifest operations. It is the business of those who are concerned with the theory of the earth, geographers and geologists, to make this fact evident in its various implications. The theorist who would deal philosophically with fine art has a like task to accomplish.[65]
>
> The first great consideration is that life goes on in an

> environment; not merely *in* it but because of it, through interaction with it.[66]
>
> It cannot be asserted too strongly that what is not immediate is not esthetic. The mistake lies in supposing that only certain *special* things—those attached just to eye, ear, etc.—can be qualitatively and immediately experienced. Were it true that only qualities coming to us through sense-organs in *isolation* are directly experienced, then, of course, all relational material would be super-added by an association that is extraneous—or, according to some theorists, by a "synthetic" action of thought. From this point of view the strictly *esthetic* value of say a painting consists simply of certain relations and orders of relation that colors *sustain to one another* apart from relation to objects. The expressiveness they gain by being present as colors of water, rocks, clouds, etc., is due to art. On this basis, there is always a gap between the esthetic and the artistic. They are of two radically different kinds.[67]

It will be observed here that Dewey's psychology of experience is far superior to Tennant's, the latter's psychology being, as has been shown, atomistic, and Dewey's expressions being thoroughly in accordance with the more recently discovered data of field-theory psychology. Dewey continues

> The psychology underlying this bifurcation [between the esthetic and the artistic] was exploded in advance by William James when he pointed out that there are direct feelings of such relations as "if", "then", "and", "but", "from", "with." For he showed that there is no relation so comprehensive that it may not become a matter of immediate experience. Every work of art that ever existed had indeed already contradicted the theory in question.[68]
>
> If a thinker had to work out the meaning of each idea discursively, he would be lost in a labyrinth that had no end and no center.[69]
>
> When we perceive, by means of the eyes, as causal aids, the liquidity of water, the coldness of ice, the solidity of rocks, the bareness of trees in winter, it is certain that other

> qualities than those of the eye are conspicuous and controlling in perception.[70]

The dynamic or vitalistic character of nature is indicated in the following passages:

> Form as something that organizes material into the matter of art has been considered . . . The definition . . . does not tell how it comes to be, the conditions of its generation. Form was defined in terms of relations and esthetic form in terms of completeness of relations within a chosen medium. . . . In art, as in nature and in life, relations are modes of interaction. They are pushes and pulls; they are contractions and expansions, they determine lightness and weight, rising and falling, harmony and discord.[71]
>
> The first characteristic of the environing world that makes possible the existence of artistic form is rhythm. There is rhythm in nature before poetry, painting, architecture and music exist. Were it not so, rhythm as an essential property of form would be merely superimposed upon material, not an operation through which material effects its own culmination in experience.[72]
>
> The terms "natural law" and "natural rhythm" are synonymous.[73]
>
> The identification of rhythm with literal recurrence, with regular return of identical elements, conceives of recurrence statically or anatomically instead of functionally; for the latter interprets recurrence on the basis of furtherance, through the energy of the elements, of a complete and consummatory experience. Since a favorite illustration of those who hold the theory is the ticking of a clock, it may be called the tick-tock theory.[74]
>
> Rhythm is rationality among qualities.[75]
>
> For there is an energy of position as well as of motion, And while the former is sometimes called potential energy in physics in distinction from kinetic energy, as directly felt it is as actual as is the latter.[76]
>
> The difference between that elusive and fragmentary thing

> psychologists call a sensation and a perception is the singleness, the integrated unity of the latter.[77]
>
> The organism is a force, not a transparency.[78]

Dewey brings in, in connection with his wholism and vitalism, his familiar prejudice against nouns. He says

> Art is a quality of doing and of what is done. Only outwardly, then, can it be designated by a noun substantive. Since it adheres to the manner and content of doing, it is adjectival in nature. . . . If "art" denoted objects, if it were genuinely a noun, art-objects could be marked off into different classes.[79]
>
> But, unfortunately, esthetic theory has not been content with clarifying qualities as matter of emphasis in individual wholes. It erected adjectives into nouns substantive, and then played dialectical tunes upon the fixed concepts which emerge.[80]
>
> When, therefore, I use the names of arts as nouns in what follows, it will be understood that I have in mind a range of objects that express a certain quality emphatically but not exclusively.[81]
>
> Expunge special meanings given to such terms as sensation, intuition, contemplation, will, association, emotion, and a large part of esthetic philosophy would disappear. Moreover, each one of these terms has different meanings given to it by different schools of psychology.[82]

The central position of art in Dewey's theory of the metaphysics of experience is revealed in his saying

> For it is experience freed from the forces that impede and confuse its development as experience; freed, that is, from factors that subordinate an experience as it is directly had to something beyond itself. To esthetic experience, then, the philosopher must go to understand what experience is.[83]
>
> "Nature", said Goethe, "has neither kernel nor shell." Only in esthetic experience is this statement completely true. Of art as experience it is also true that nature has neither subjective nor objective being; is neither individual nor universal, sensuous nor rational. The significance of art as experience is,

> therefore, incomparable for the adventure of philosophic thought.[84]

To summarize, it is believed that the selected materials here presented are sufficient to indicate the metaphysical vitalistic character of nature as Dewey conceives it. The passage quoted from page 177 with which this study of the metaphysics of *Art as Experience* was introduced, is probably the clearest and most centrally important of all the passages cited.

"A Common Faith"

An investigation of John Dewey's metaphysics would not be complete without the study of his views on religion. These views are summarized in a small volume of lectures delivered at Yale University in 1934.[85]

At the very beginning Dewey takes strong anti-supernaturalistic ground. He says

> The opposed group [that is the group to which Dewey belongs] consists of those who think the advance of culture and science has completely discredited the supernatural, and with it, all religions that were allied with belief in it.[86]

If one asks how lectures on a religious foundation, claiming to be religious in their nature can be based on anti-supernaturalistic assumptions, one must go back to Dewey's definition of religion. Taking the etymology of the Latin word *religare,* to bind, or bind back, Dewey explains that religion came from the thought of the devotee being bound by vows or assumed obligations to the shrine of his god or gods. Dewey proceeds to appropriate the word religious by stating,[87] "The religious attitude signifies something that is *bound* through imagination to a *general* attitude."

In a usage which is by no means uncommon the word supernatural implies a distinction between two very different realms of being. In Biblical literature, however, there is but one realm of reality. God interacts immediately or mediately in and with his creation. It is quite "natural" for events to occur under certain circumstances which imply the immediate action and interaction of God in the historical situation. Dewey seems to sense something of this fact, for he says, "In the older cultures the idea of the supernatural was 'natural' in the sense in which 'natural' signifies something customary and familiar."[88] Recognizing however that the word supernatural has come to a well established usage in philosophical and religious literature Dewey takes his stand squarely against supernaturalism in all its forms. He says

> In the discussion I shall develop another conception of the nature of the religious phase of experience. One that separates it from the supernatural and the things that have grown up about it.[89]

He is opposed even to the recognition of an impersonal supernatural. He says

> Matthew Arnold's conception of a 'Power not ourselves' is too narrow in its reference to operative and sustaining conditions. There seems to be a reminiscence of an external Jehovah in Arnold's statement, and the powers work to enforce other values and ideals than righteousness.[90]

In studying other phases of Dewey's philosophy one is impressed by his rejection of materialism as well as his rejection of supernaturalism. From his early idealistic training, under the influence of T. H. Green, it would have been natural to expect him to react from Green's idealism to the other extreme, materialistic atheism. Perhaps, however, Dewey's rejection of materialism is largely explained *by* his thoroughgoing anti-supernaturalism, for he says

> As long as the conceptions of science were strictly mechanical (mechanical in the sense of assuming separate things acting upon one another purely externally by push and pull) religious apologists had a standing ground in pointing out the differences between man and physical nature.[91]

Indeed from the point of view of anyone defending Christian evidences on plain and simple empirical scientific grounds, —pursuing the methods of Paley and Butler, and, in part, Tennant, the method which Paul employed in the first chapters of the Epistle to the Romans, the method of the book of Job, —from this point of view, materialism offers an excellent opening for theistic argument. When we discover a stark materialist, we ask immediately what kind of matter is the materialistic philosopher's mind made of? Dewey cannot be trapped with the bait of materialism. One cannot of course ascribe Dewey's rejection of materialism purely to his anti-supernaturalistic motives, but at least Dewey has been shrewd enough to see the opening which materialism affords to theism, and to avoid materialism as being entirely too difficult to defend against supernaturalism.

For Dewey, ontology has to do merely with events or functions. He is no more willing to accept idealism, or the mind as an entity, than to accept materialism. He says "Intelligence, as distinct from the older conception of reason, is inherently involved in action."[92] In the *Journal of Philosophy* four years ago he said

> One frequently hears it said that no matter what form of inquiry one undertakes into life and mind, one involves oneself always in metaphysics and can never escape it. In contrast with this hoary adage our position is that if one seeks with enough earnestness to identify his attitudes of workmanship and the directions of his orientation, he can by-pass the metaphysics by the simple act of keeping observation and postulation hand-in-hand; the varied "ultimates" of metaphysics become chips that lie where they fall.[93]

As for his reasons against supernaturalism, Dewey is very cautious. He does not fall into the blunder of basing his rejection of the traditional theistic proofs upon the arguments of Kant. Dewey does not thus commit himself to Kant's reasoning; he says

> . . . there are many religionists who are now dissatisfied with the older "proofs" of the existence of God, those that go by the name of ontological, cosmological, and teleological. The cause of the dissatisfaction is perhaps not so much the arguments that Kant used to show the insufficiency of these alleged proofs, as it is the growing feeling that they are too formal to offer any support to religion in action. Anyway, the dissatisfaction exists.[94]

But has there ever existed a "religionist" who feels that these arguments, especially the teleological, are too formal to give support to "religion in action"? The practical utility of the teleological argument is admitted by Kant and by "religionists" in general. Dewey himself does not seem to be quite sure why these arguments have been neglected. Perhaps it is because "religionists" have either been too timid to stand up against the enormous prestige of Kant's *Kritik,* or have been too lazy-minded to analyze and refute Kant's objections.

The writings of Hodge, Flint, and Orr, are evidence that "religionists" have not all abandoned the formal theistic proofs. Lamprecht's statement is almost an exact obverse of what Flint said forty-odd years earlier. Lamprecht says

> Hume and Kant both dealt effectively with most of these considerations; and repetition of the arguments since their time is evidence of the persistence of old beliefs and of the pathos of human hopes, but hardly of what is really at stake, namely, proof of the existence of God.[95]

Flint said in 1903

> It is . . . perhaps not surprising that during the period when the influence of Kant was at its height his criticism of the theistic proofs should have been widely regarded as decisive. That time has now largely passed away, and those who believe so may not uncharitably be regarded as belated thinkers or very uncritical critics.[96]

Such reasons as Dewey gives against theism may be summarized under the following headings, (1) He finds supernaturalism opposed to the scientific method. Dewey does recognize that some types of supernaturalism claim to be empirical and scientific in their approach. From the context, I judge that the only such claim with which Dewey is familiar comes from subjectivists who appeal merely to an inward religious experience. Probably Dewey has no acquaintance with the type of evidences dealt with by F. R. Tennant, as summarized above.

With reference to the claims of supernaturalists who appeal to subjective religious experience, Dewey says

> What is more natural and proper accordingly, than that they should affirm that they are just as good empiricists as anybody else—indeed as good as the scientists themselves.[97]

As one of the evidences that Dewey is not acquainted with those who have historically claimed *Christus vere resurrexit,* I would cite the following sentence:

> It does not become those who hold that faith may move mountains to deny in advance the possibility of its manifestation on the basis of verifiable reality.[98]

No one who had read Paley or Butler or Tennant, no one familiar with Biblical literature, could have written such a sentence. It is "on the basis of verifiable reality" that Christian apologetics, especially in Protestantism, has traditionally challenged the world.

Dewey's misunderstanding is further illustrated by the following quotations:

> The scientific-religious conflict ultimately is a conflict between allegiance to this method [the scientific] and allegiance to even an irreducible minimum of belief so fixed in advance that it can never be modified.[99]
>
> For were we to admit that there is but one method of ascertaining fact and truth—that conveyed by the word "Scientific" in its most general and generous sense—no discovery in any branch of knowledge and inquiry could then disturb the faith that is religious.[100]

With reference to liberalism[101] and fundamentalism, Dewey's attitude is a typical case of the extremes against the middle. The same type of thought is found in the statements of Mencken, Walter Lippmann, and Pearl Buck with reference to the scholarship of James Gresham Machen.[102] Dewey says

> The modern liberal version of the intellectual content of Christianity seems to the modern mind to be more rational than some of the earlier doctrines that have been reacted against. Such is not the case in fact.[103]

He further states

> The fundamentalist in religion is one whose beliefs in intellectual content have hardly been touched by scientific developments. His notions about heaven and man, as far as their bearing on religion is concerned, are hardly more affected by the work of Copernicus, Newton, and Darwin than they are by that of Einstein.[104]

The second reason why Dewey opposes supernaturalism is (2) he believes supernaturalism to be a hindrance to the exertion of human energy and ingenuity for the solution of human problems. He says

> Men have never fully used the powers they possess to advance the good in life because they have waited upon some power external to themselves and to nature to do the work they are responsible for doing. Dependency upon an external power is a counterpart of surrender of human endeavor.[105]

Other statements to the same effect are as follows:

> The assumption that only supernatural agencies can give control is a true method of retarding this effort, [human betterment]. It is as sure to be a hindering force now with respect to social intelligence as the similar appeal was earlier an obstruction in the development of physical knowledge.[106]
>
> The objection to supernaturalism is that it stands in the way of an effective realization of the sweep and depth of the implications of natural human relations.[107]

Dewey is noted for his so-called "genetic" method of argument. Horne[108] frequently calls attention to it, and argues that the origin of an idea does not prove that the idea is either good or bad, sound or unsound. Dewey is very careless in his use of argument from history and sometimes gives forth great generalizations which do not correspond to facts. The following quotation is a fair example:

> History seems to exhibit three stages of growth. In the first stage human relationships were thought to be so infected with the evils of corrupt human nature as to require redemption from external and supernatural sources. In the next stage, what is significant in these relations is found to be akin to values esteemed distinctly religious. This is the point now reached by liberal theologians. The third stage would realize that in fact the values prized in those religions that have ideal elements are idealizations of the things characteristic of natural association which have then been projected into a supernatural realm for safe keeping and sanction.[109]

One can easily recognize that this "three-stage" scheme is akin to the humanism of Comte. It is perfectly apparent that what he regards as still future cannot be held to be the third stage of history. At least such a prophecy is speculative. It has no kinship to history as a science dependent upon tangible data!

Dewey thinks that depreciation of social values results from regard for the supernatural. He says

> The contrasts outlined define the religious problem of the present and the future. What would be the consequences upon the values of human association if intrinsic and immanent satisfactions and opportunities were clearly held to and cultivated with the ardor and the devotion that have at times marked historic religions? The contention of an increasing number of persons is that depreciation of natural social values has resulted, both in principle and in actual fact, from reference of their origin and significance to supernatural sources. Natural relations, of husband and wife, of parent and child, friend and friend, neighbor and neighbor, of fellow workers in industry, science and art, are neglected, passed over, not developed for all that is in them.[110]

Dewey is so sure that cultural progress eliminates the supernatural, and, conversely, that the supernatural is opposed to cultural progress that he concludes that we are faced with two alternatives. "One alternative is dependence upon the supernatural; the other, the use of natural agencies."[111]

Dewey's third objection to supernaturalism is that (3) supernaturalism fails, and has failed, to meet the problem of evil. He says

> We are involved by this search [human improvement] in all the problems of the existence of evil that have haunted theology in the past and that the most ingenious apologetics have not faced, much less met.[112]

And again

> The conclusion [the need of supernatural salvation] does not follow, however, from the data [the disorders in the world]. It ignores in the first place, that all the positive values which are prized, and in the aid of which supernatural power is appealed to, have, after all, emerged from the very scene

> of human associations of which it is possible to paint so black a picture.[113]

One may well challenge Mr. Dewey to produce in the whole field of naturalistic literature anything so frankly facing human social disorders as the first two chapters of the Epistle to the Romans, the *Meditations of Augustine,* or the prophecy of Isaiah. Mr. Dewey does not seem to have felt any need of *examining* great historical literature.

Further the assumption as an obvious fact that all the values in question have "emerged from" the merely human realm, is a perfect case of begging the question. If he had said that the values under discussion are to be *found in* the human realm, that would have been a matter of observation, but when he presumes to set up negative limitations of a universal order and declare that these values found in the human realm can have had none other than a human origin, he is not arguing scientifically.

Dewey further objects to supernaturalism on the ground that (4) it studies man as an end in himself introducing a dualism between human nature and nature as a whole. Curiously enough Dewey links atheism with supernaturalism in this argument, and is quite ready to carry along the word "God" as a part of his baggage in order to avoid commitment to atheism *as an organized movement.* One wonders whether his retaining the word "God" may have been induced partly by the fact that he was delivering a course of lectures at the time on a foundation endowed hardly for the purpose of spreading atheism.

Dewey says

> One reason why personally I think it fitting to use the word "God" to denote that uniting of the ideal and actual which has been spoken of, lies in the fact that aggressive atheism seems to me to have something in common with traditional supernaturalism. What I have in mind especially is the exclusive preoccupation of both militant atheism and supernaturalism with man in isolation.[114]
>
> The essentially unreligious attitude is that which attributes human achievement and purpose to man in isolation from the world of physical nature and his fellows.[115]

It is true that traditional Christianity has regarded man as a creature in the image of God, superior to the rest of nature. The atheistic literature with which I happen to be familiar, however, does not warrant Dewey's attack. What recognized exponent of atheism would hesitate in accepting the total content of Dewey's "religious," including what he calls "God"? except that the atheist would be more frank in his use of language!

Dewey takes his stand squarely opposed to religion or religions but he seeks to defend his usage of the word "religious" as follows:

> To be somewhat more explicit, a religion, (and as I have just said there is no such thing as religion in general) always signifies a special body of beliefs and practices having some kind of an institutional organization, loose or tight. In contrast, the adjective religious denotes nothing in the way of a specificable entity, either institutional or as a system of belief. It denotes attitudes that may be taken toward every object and every proposed end or ideal.[116]

Dewey had said above

> The moment we have a religion, whether that of the Sioux Indian or of Judaism or of Christianity, that moment the ideal factors in experience that may be called religious take on a load that is not inherent in them, a load of current beliefs and of institutional practices that are irrelevant to them.[117]

He states further

> The opposition between religious values as I conceive them and religions is not to be bridged. Just because the release of these values is so important, their identification with the creeds and cults of religions must be dissolved.[118]

Dewey does concede that the human values which he considers purely naturalistic have a relation to religion or religions, but he feels that these values are obscured and hindered by all that he designates by the noun, whether singular or plural, and can be advanced by the abandonment of the noun and the substitution of the adjective. This, of course, is not a mere verbalism, but a basic matter of ontology.

Dewey is quite simple and clear in his conception of the religious. He says

> It is this *active* relation between ideal and actual to which I would give the name "God." I would not insist that the name be given.[119]

The religious must have a future reference, and cannot be directed toward present realities, "for all endeavor for the better is moved by faith in what is possible not by adherence to the actual."[120]

Dewey calls attention to the fact that since the beginning of United States history, Church and State have been separated, and institutions of human welfare have largely been carried on outside of the church. He says

> These social modes have grown so much that they exercise a greater hold upon the thought and interest of most persons, even of those holding membership in churches. The positive extension of interests which, from the standpoint of a religion, are non-religious, is so great that in comparison with it the direct effect of science upon the creeds of religion seems to be of secondary importance.[121]
>
> These movements [secular welfare] and others not mentioned are the intellectual reflex of the greatest revolution that has taken place in religion during the thousands of years that man has been on earth.[122]
>
> The essential point is not just that secular organizations and actions are legally or externally severed from the control of the Church, but that interests and values unrelated to the offices of any church now so largely sway the desire and aims of even believers.[123]
>
> In the first place, conditions are such that this action is a matter of personal choice and resolution on the part of individuals, not of the very nature of social organizations.[124] Communion with God [according to Protestantism] must be initiated by the individual's heart and will through direct divine assistance.[125]
>
> But the thing new in history, the thing once unheard of

> is that the organization in question [the church] is a special institution within a secular community.[126]

This last sentence is exasperating in its naïveté. Dewey seems utterly ignorant of the first three hundred years of the history of the Christian Church! The fact that he has never heard of institutions of religion existing as special institutions within a society organized on a basis entirely different from theirs, that he is amazingly careless about history, does not change the historical facts.

Of course there has been a radical change from medieval Europe to free America. There is a separation of church and state, and the consequent separation of education and all charitable and other welfare institutions from the dominance of the organized church has made a great difference. For a Protestant these facts are evidence of a kind of religion, a kind of church of which Mr. Dewey has never dreamed; a church described by C. S. Lewis[127] in his brilliant style. The words are from a letter from the demonic Screwtape to his subdemonic nephew Wormwood.

> One of our great allies at present is the Church itself. Do not misunderstand me. I do not mean the Church as we see her spread out through all time and space and rooted in eternity, terrible as an army with banners. That, I confess, is a spectacle which makes our boldest tempters uneasy. But fortunately, it is quite invisible to these humans. All your patient sees is the half-finished sham Gothic erection on the new building estate.

If Dewey had the slightest conception of the Protestant idea of the church invisible, the church "spread out through all time and space and rooted in eternity, terrible as an army with banners," the church which a Protestant is serving in any Christian deed, whether organizationally controlled by ecclesiastical potentates or not,—if Dewey had had any conception of this view of the church, he would not have written the sentences last quoted from him above.

Dewey is eager to press forward the elimination of all that is signified by the noun religion, whether used in the singular or the plural, and to substitute what he designates by the adjective religious. He says

> Were the naturalistic foundations and bearings of religion grasped, the religious element in life would emerge from the throes of the crisis in religion. Religion would then be found to have its natural place in every aspect of human experience that is concerned with estimates of possibilities, with emotional stir by possibilities as yet unrealized, and with all action in behalf of their realization. All that is significant in human experience falls within this frame.[128]

Dewey adds

> But if it be once admitted that human relations are charged with values that are religious in function, why not rest the case upon what is verifiable, and concentrate thought and energy upon its full realization.[129]

And further

> I pointed out that religion—or religions—is charged with beliefs, practices and modes of organization that have accrued to and been loaded upon the religious element in experience by the state of culture in which religions have developed. I urged that conditions are now ripe for emancipation of the religious quality from accretions that have grown up about it and that limit the credibility and the influence of religion.[130]

What will be the result of Dewey's proposal of substituting the religious for religions? Will it be an atmosphere of true liberalism in which even evidence for theism may have a hearing? Will it be an atmosphere even as liberal as agnosticism?

The answer is that a surprising "creed founded on this material will change and grow but it cannot be shaken."[131] Agnosticism will be eliminated. " 'Agnosticism' is a shadow cast by the eclipse of the supernatural."[132] There may, indeed, be doubts in the course of progress as article after article is added to the creed which "cannot be shaken." "But," says Dewey, "such doubts are an incident of faith in the method of intelligence . . . we doubt in order that we may find out, not because some inaccessible supernatural lurks behind whatever we can know."[133]

When it comes to ethics it must be admitted that any religion and any philosophy must stand up and answer the question "What is your criterion of the right and good?" Does Dewey have an answer to this question? Yes, indeed. A very simple reply, to the effect that, Everybody knows the answer to that! He says

> The reality of ideal ends and values in their authority over us is an undoubted fact. The validity of justice, affection, and that intellectual correspondence of our ideas with realities that we call truth, is so assured in its hold upon humanity that it is unnecessary for the religious attitude to encumber itself with the apparatus of dogma and doctrine.[134]

This is, indeed, optimistic; justice, affection, and truth, are thought to be so assured of their hold upon humanity and so clear in their perspicuity that ethical or religious doctrines and dogmas are entirely unnecessary. It would seem that there is no more need of the ten commandments, and that the ethical dogma of Paul's Epistle to the Ephesians, Chapters 4, 5, and 6, is obsolete. Magna Charta and the Bill of Rights are institutionalized, and were believed by their authors to be the elements in organized religion!

Summary and Conclusion

The study of Dewey's metaphysics might be indefinitely extended but the samplings presented chiefly from *Experience and Nature, Art as Experience* and *A Common Faith* are representative and sufficient. The writer has prepared rather extensive notations on the metaphysical aspects of the various discussions of Dewey's philosophy in the Schilpp volume. But the discussion of these matters would enlarge this thesis beyond all proper proportions, and, as a matter of fact, it would be largely repetitious. The material hitherto presented will be accepted by most careful students of Dewey's writings as fairly representative.

Dewey's metaphysics is positive in its dynamic vitalistic view of the events which go to make up reality. A considerable bulk of his discussions of metaphysical subjects is characterized by negatives.

(1) It is anti-materialistic. Opposition to materialism has been

consistently maintained from the earliest period in Dewey's writings and has never been deviated from.

(2) Dewey's metaphysics is anti-idealistic. This aspect of his philosophy was not there in the earlier stages, and has not been consistently adhered to. As has been indicated, in his earlier period he held an advanced form of Hegelian idealism largely as exemplified by T. H. Green. By the turn of the century, however, idealism had been abandoned. There are certain outcroppings of it even in his more recent works, but generally speaking, the answer to the ontological question, "What is the world made of?" is not, "Idea".

(3) Anti-personalism may be regarded as a phase of Dewey's anti-idealism. He is, in all his recent writings, sharply opposed to any opinion which regards personality as an existing entity. Of the two, he is more bitter and belligerent against mind as an ontological existent then against matter as such an existent.

(4) Dewey is anti-rationalistic. He consistently denies, since his abandonment of idealism, the notion that reason is in any sense the cause of existence. He consistently denies the *a priori* character of the abstract laws of reason or the empty possibilities of rational relationships.

(5) Although it may be disputed, it is fair to say that Dewey is anti-historical. True, he has much to say about history as he conceives it; but his ontology would make it utterly impossible to establish upon reasonable grounds, or even to discuss the propositions that Washington crossed the Delaware, that Caesar crossed the Rubicon, or that Christ arose from the dead. He banishes all the tools by which any valid historical evidence could be presented.

(6) Anti-supernaturalism is, of course, one of the outstanding features of Dewey's philosophy. Perhaps it should be said that he has always been an anti-supernaturalist. The God of his early writings is merely the sum total of the world regarded under personal terminology. When he took his stand as an anti-supernaturalist and substituted social experiential terminology for personal, the transition may not have been great so far as subject-matter content was concerned. His vitalistic *process* is practically

identical with his former neo-Hegelian God. The transition may have been more emotional than substantival.

(7) Anti-dualism is, perhaps, the best known negative characteristic. It seems substantially identical with the Hegelian identity of opposites or *Negativität.*

All these negatives are held on purely *a priori* grounds. It has been shown in some detail in discussing various points, and with rather extensive samplings of data, that the negative elements in Dewey's philosophy are not based upon constructive arguments. To illustrate my point, the opinions of modern physicists to the effect that ether does not exist, have been based upon elaborate experimental processes endeavoring to find out *whether* it does exist or not,—endeavoring to give it every opportunity to manifest itself. The student of John Dewey's writings will search in vain for anything analogous to the elaborate experimental processes by which some modern physicists have come to negative conclusions in regard to the existence of ether.

There is, as has been said, one positive element in Dewey's metaphysics, namely his recognition of vitalistic process, the units of which are variously called events, situations, etc., and the overall process variously called inquiry, nature, experience, society, etc. However, this one positive element, completely surrounded by *a priori* negatives, is forbidden to arrive at certainty of any kind.

1—Volume XLV No. 18.

2—Y. H. Krikorian, editor, Columbia University Press, 1944.

3—*Journal of Philosophy,* Vol. XLII (1945), pp. 253-270.

4—*Journal of Philosophy,* Vol. XLII (1945) pp. 515-530.

5—Op. cit., p. 480, Italics, except Latin words, not in original.

6—A favorite saying of Professor Gray, Head of the University of Minnesota Economics Department, about 1916-1917.

7—Ibid., p. 480.

8—Loc. cit.

9—The term "participial" is my own, however. I present below cases in which Dewey uses "adjectival" and "adverbial." My point is that grammatically the term participial is more precisely expressive of the status of objects in Dewey's ontology.

10—Loc. cit. Italics not in the original.

11—Ibid., p. 484.

12—Ibid., p. 481.

13—Ibid., p. 484.

14—Ibid., p. 485.

15—John Dewey, *Experience and Nature,* Lectures upon the Paul Carus Foundation, first series, Open Court Publishing Company, first edition, 1925, second edition, 1929.

16—Op. cit., p. 75.

17—Ibid., p. 74.

18—Loc. cit.

19—Loc. cit.

20—Op. cit., p. iv.

21—Op. cit., edition of 1929, pp. 11f.

22—Ibid., p. 49. The page references seem to be identical in both editions after p. 40, at the beginning of the second chapter.

23—Ibid., p. 70.

24—Ibid., p. 73.

25—Ibid., p. 73f.

26—Ibid., p. 84.

27—Ibid., p. 99.

28—Ibid., p. 107.

29—Ibid., p. 234. See similar references to causality on pages 99f, 107, 109.

30—Ibid., p. 78.

31—Ibid., p. 86.

32—Ibid., p. 430.

33—Ibid., p. 76.

34—Ibid., p. 99.

35—Ibid., p. 115.

36—Ibid., p. 146.

37—Ibid., p. 147.

38—Loc. cit.

39—Judging from the context, the word intended must have been "antinomies."

40—Loc. cit., Italics not in original.

41—Ibid., p. 147.

42—Op. cit., p. 296.

43—*Experience and Nature,* pp. 279f.

44—Ibid., p. 153.

45—Ibid., p. 154. A similar opinion is expressed in, and will be discussed in the study of his book, *A Common Faith.*

46—Ibid., p. 156. From illustrations which Dewey gives in the context, it appears that the Norsemen discovered the new world, in the future-perfect tense. They did not discover that it *was* there and *had been* there, but they discovered that from now on it *will have been* there.

47—Ibid., p. 158.

48—Ibid., pp. 160f. Last clause not Italicized in original.

49—Ibid., p. 232.

50—Ibid., p. 239.

51—Ibid., p. 241.

52—Ibid., pp. 241f.

53—Ibid., pp. 253f.

54—Ibid., p. 308.

55—Ibid., p. 333f.

56—Ibid., p. 334.

57—Ibid., p. 412f.

58—See pp. 12 (1929 edition), 180, 181, 293, 320, 348.

59—Ibid., 1929 edition, p. 12.

60—John Dewey, *Art as Experience*, Minton, Balch & Co., 1934, pp. 177f.

61—Op. cit., pp. 177f.

62—Op. cit., p. 212.

63—The two books *Experience and Nature* and *Art as Experience* are not characterized by the carelessness of reference to other writers which is exemplified in so many passages of the *Quest for Certainty.* Two examples stand out however; in *Experience and Nature,* p. 249, Dewey says

> In Pauline Christianity and its successors, the body is earthly, fleshly, lustful and passionate; spirit is God-like, everlasting; flesh is corruptible; spirit incorruptible. The body was conceived in terms of a moral disparagement colored by supernatural religion.

Any competent encyclopedia article or other study in Pauline doctrine will show that whereas Paul uses the words "flesh" and "body" by metonymy for sinful human nature, yet the "works of the flesh" most generally referred to are envy, malice, outbursts of wrath, —sins of the mind—, far more than drunkenness and licentiousness, sins literally of the body. Paul teaches repeatedly and emphatically that the physical body is "the temple of the Holy Spirit." Paul put great emphasis upon the teaching that Jesus lived a sinless life in the flesh. The well-known Pauline doctrine of the resurrection of the body, alone, should be sufficient to have corrected Dewey's misinterpretation.

In *Art as Experience* p. 65 Dewey says

> Even the Almighty took seven days to create the heaven and the earth, and, if the record were complete, we should also learn that it was only at the end of that period that he was aware of just what He set out to do with the raw material of chaos that confronted Him. Only an emasculated subjective metaphysics has transformed the eloquent myth of Genesis into the conception of a Creator creating without any unformed matter to work upon.

These remarks not only indicate that Dewey has never read the source to which he refers, but they show ignorance of the principles of literary criticism, and exhibit no decent respect for the data of literature taken as such. "The eloquent myth of Genesis" to which Dewey refers cannot be found in the book called "Genesis."

It is not a question of Dewey's right to hold that material in an ancient document is mythical if that is his opinion. My point is that he has ascribed to the ancient document material which the ancient document does not contain. He has misread his source.

64—"Holistic" might be a justifiable term, since the Holists claim him.

65—Ibid., p. 3f.

66—Ibid., p. 13.

67—Ibid., p. 119.

68—Ibid., p. 119.

69—Ibid., p. 120.

70—Ibid., p. 123.

71—Ibid., p. 134.

72—Ibid., p. 147.

73—Ibid., p. 149.

74—Ibid., p. 163.

75—Ibid., p. 169.

76—Ibid., p. 211.

77—Ibid., p. 219.

78—Ibid., p. 246.

79—Ibid., p. 214.

80—Ibid., p. 223.

81—Ibid., p. 229f.

82—Ibid., p. 245.

83—Ibid., p. 274.

84—Ibid., p. 297.

85—John Dewey, *A Common Faith*, Yale University Press, 1934, 7th printing, 1944.

86—Ibid., p. 1. Anti-supernaturalism, the denial of all cosmic teleology and atheous humanism were key notes at John Dewey's ninetieth birthday banquet, Oct. 20, 1949, especially in his own remarks and in those of Prof. Kilpatrick.

87—Ibid., p. 23.

88—Ibid., p. 44.

89—Ibid., p. 2.

90—Ibid., p. 54.

91—Ibid., p. 54.

92—Ibid., p. 79.

93—*Journal of Philosophy*, Vol. XLII, No. 24, Nov. 22, 1945, p. 647.

94—*A Common Faith*, p. 11.

95—Chapter II of *Naturalism and the Human Spirit*, Y. H. Krikorian, Editor, Columbia University Press, 1945, p. 32.

96—Professor Robert Flint, *Agnosticism*, Scribner's, 1903, p. 220.

97—Op. cit., p. 11.

98—Ibid., p. 81.

99—Ibid., p. 39.

100—Ibid., p. 33.

101—See my discussion of *The Christian Answer*, edited by Henry P. Van Dusen, Charles Scribner's Sons, publication date September 10, 1945, in *The Bible Today*, Vol. XXXIX, No. 11, p. 319f.

102—See for example Walter Lippmann's *Preface to Morals*, Macmillan, 1929, pp. 32, 33, 34. Mencken and Pearl Buck wrote to the same effect in articles current at the time of Machen's death.

103—Ibid., p. 33.

104—Ibid., p. 63.

105—Ibid., p. 46.
106—Ibid., p. 76.
107—Ibid., p. 80.
108—*The Democratic Philosophy of Education*, Macmillan, 1944.
109—*A Common Faith*, p. 72.
110—Ibid., p. 71.
111—Ibid., p. 81.
112—Ibid., p. 45.
113—Ibid., p. 74.
114—Ibid., p. 52f.
115—Ibid., p. 25.
116—Ibid., p. 9f.
117—Ibid., p. 8.
118—Ibid., p. 28.
119—Ibid., p. 51.
120—Ibid., p. 23.
121—Ibid., p. 61.
122—Ibid., p. 65.
123—Ibid., p. 65.
124—Ibid., p. 66.
125—Ibid., p. 68.
126—Ibid., p. 61.
127—*Screwtape Letters*, Macmillan, eleventh edition, 1945, p. 15.
128—Op. cit., p. 57.
129—Ibid., p. 72.
130—Ibid., p. 84.
131—Ibid., p. 85.
132—Ibid., p. 86.
133—Ibid., p. 86.
134—Ibid., p. 44. It has been suggested that by such terms as creed, doctrine, etc., Dewey means *unalterable* formulas. There is, however, no evidence in the immediate context or in the entire book to indicate that Dewey did not use such terms with full knowledge of the way in which creeds develop. When he wishes to describe his own creed as the final one, he adds synthetically that it "cannot be shaken." Creeds *as such* are not held to be unalterable, but Dewey is opposed to *organized doctrine* as such. Reference to the Bill of Rights is held by the writer to be a fair illustration, in the light of all that Dewey says.

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

General Summary

Summary of Procedure

The problem investigated by the present writer is the empirical philosophical method of F. R. Tennant as compared with that of John Dewey. Search has been made for possible philosophical implications of Tennant's empiricism for those areas of American education in which Dewey's thought is a prevailing influence.

In the introductory preface (pp. 1-8) the empiricism found in Tennant, and common to both Tennant and Dewey, was strictly delimited, and other types of empiricism were expressly excluded from this investigation. It develops that both Tennant and Dewey adhere to a form of empiricism which finds its data in such human experience as is open to public investigation. Mystical and ineffable experiences therefore, such as are included in some types of empiricism, are mentioned in this thesis only insofar as Tennant and Dewey refer to the data of such experiences negatively.

Both Tennant and Dewey are interested in scientific method, Tennant having been trained as a physicist before beginning to specialize in philosophy. Both writers accordingly seek to pursue empirical methods which would be approved by workers in the physical and biological sciences.

Tennant's special interest is in philosophical theology. His empirical philosophical method is employed in considering problems of a theological nature, and is directed toward theological conclusion. While Dewey is not primarily interested in theology, there are extensive elements in his empiricism which bear upon that field. Dewey's conclusions in theology are generally negative[1] when compared with those of Tennant; yet this very contrast in results gives rise to fruitful comparisons in the matter of the empirical method employed.

The investigation reported in this thesis does not include the support of particular theological conclusions, but does concern itself with such empirical method as may properly be used in reaching positive or negative results in the field of philosophical theology.

The method employed in the investigation of this problem might be compared to the method used by explorers. As available maps, sketches, and reports of previous explorations are diligently studied and compared, while the explorer proceeds with his own observations, so the writer has carefully studied the more important works of those who have previously made investigations in this field. The writings of Bertocci and Scudder on Tennant frequently referred to in the thesis, are outstanding. Though the writer has sometimes disagreed with their findings, yet their works have been of inestimable value in opening up the whole area of Tennant's empiricism. For a preliminary understanding of Dewey, the volume on *The Philosophy of John Dewey* edited by Paul Arthur Schilpp, frequently referred to throughout the above discussion of Dewey's views, is of monumental significance. Of equal value in proportion to its limited extent, is the remarkably meaty and lucid little volume *The Origin of Dewey's Instrumentalism* by Morton G. White. White's study, however, is confined to Dewey's early years as a teacher.

Far more extensive than the writer's examination of previous studies of Tennant and Dewey, was the writer's own general reading of such books and writings of these two philosophers as are related to the problem investigated. Thus a general idea, or, to revert to the figure of the explorer, a general view of the contour of the land to be surveyed, was gained before details of procedure were settled upon.

It was the writer's original intention to set forth the views of Tennant first without comparison or critique, then to make comparisons and criticisms, next to treat the empiricism of Dewey in a similar manner, and finally to draw such conclusions as might be possible. It was soon discovered, however, that such an artificial plan of procedure was entirely inadequate for the handling of the material to be dealt with. The empiricism of Tennant is highly controversial. To state that his method is thus and so in psychology, epistemology, or metaphysics requires not only elaborate documentation, but explanation and anticipation of objections from those who read his views differently.

If this is true of Tennant, it is more true of Dewey. The Schilpp volume is filled with conflicting opinions of what Dewey teaches, and Dewey's reply to the experts who wrote on his philosophy indicates, more often than not, that he thinks they have misunderstood him.

Both Tennant and Dewey are vitally bonded in with rich, varied, and conflicting aspects of the western cultural heritage. An exposition of the views of either without comparison, criticism and evaluation, point by point and topic by topic, would have had to be confined to mere superficialities. To have failed, for example, to bring in collateral material from Descartes and Leibnitz at the points where it is relevant in Tennant's philosophy, or to have recounted Dewey's views on Newton, Bridgman, Eddington and Einstein in one chapter, and then to have brought in the relevant material from these writers in another chapter, would have made it extremely difficult for the reader to make his own comparisons and draw his own conclusions on the basis of the data.

Instead, with the unanimous approval of the writer's advising committee, it was decided to proceed inductively and topically. An effort has been made to discuss point by point each aspect of Tennant's empiricism adequately for the purposes of this thesis, and to treat the relevant phases of Dewey's philosophy similarly. Thus the final summary and comparison between the two philosophies, the drawing of conclusions, and the making of recommendations for further research have been made relatively simple.

The topical and inductive method of investigation has been greatly facilitated by the fact that, without injustice, the empiricism of each of the two philosophers may be subsumed under the three principal heads, psychology, epistemology, and ontology or metaphysics, and by the further discovery that the writings of each, relevant to the present investigation, may be roughly classified in these three divisions.

There was no *a priori* reason for supposing that this latter discovery would be forthcoming. Either Tennant or Dewey or both might well have been found to have pursued such a literary course that the chief divisions of the subject matter of this investigation might have been impossible of correlation with any considerable blocks of written material. But as a matter of fact Tennant's empirical psychology is largely concentrated in the first half of Volume I of his *Philosophical Theology* and in the first third of his *Philosophy of the Sciences*. His epistemology is elaborated in the latter half of the former book and in the central portion of the latter; and his metaphysics in the second volume of his *Philosophical Theology,* and in the last third of his *Philosophy of the Sciences*. These three divisions of Tennant's subject matter have been presented in Chapters I, II and III.

Dewey's psychology, or at least such psychological views as may profitably be compared or contrasted with Tennant's philosophy of psychology, are found in the several shorter works reviewed in Chapter IV. His epistemology is presented chiefly in his *Quest for Certainty* and in his *Logic,* reviewed in Chapter V. Dewey's metaphysics, the subject of Chapter VI, is adequately set forth in *Experience and Nature,* in portions of *Art as Experience,* and in *A Common Faith.*

A considerable quantity of collateral material from Tennant and Dewey, and from other writers, has been introduced where it was found relevant. The several chapters of this thesis are by no means mere summaries of the chief writings discussed. Nevertheless, the reader will have observed that the six chapters which constitute the body of the thesis do contain a specialized commentary on the principal writings of Tennant and Dewey listed above. Although sufficient material has been quoted to give the data for conclusions drawn, and, indeed, the writer has been liberal with the quantity of quoted material because of the controversial nature of the investigation, yet the reader who has had the principal works of Tennant and Dewey at hand and followed the context, has the more clearly apprehended the course of the reasoning. It is suggested that students of Tennant's or Dewey's philosophy may find the above mentioned commentary material useful, whether they are interested in this thesis as a whole or not.

This concluding summary of the investigation as a whole may the better be brief and relatively simple, because of the rather extensive elaboration of detail in the several chapters. The topical inductive method of procedure has thus been conducive to lucidity in the end.

Summary—Philosophy of Empirical Psychology

Tennant's psychology, the subject of Chapter I, begins, and he thinks must begin, with the elemental data—*so-called knowledge of so-called objects by so-called subjects.* This genesis of psychology being one of his chief points of emphasis, Tennant calls his view "genetic psychology." It has been observed that this elemental data of psychology just delivers Tennant from sensationalism. The "so-called subject" is not a *tabula rasa.* The sensation occurs at the genesis of psychology, but it is bi-polar at the start; and the "subject" and "object" are factors in the situation.

From this beginning Tennant develops a rather common type of associationism of the older variety; not the associationism of physiological brain tracks, S-R bonds, or connectionism, but the associationism of ideas familiarly found in Hume and J. S. Mill. Tennant is deficient in understanding of field theory, or *Gestalt* psychology.

For purposes of this investigation, two features of Tennant's psychology must be given special emphasis: (1) his insistence that *all science must begin with psychology,* as well as that all psychology must begin with the point of genesis above stated; (2) his Cartesian argument for the existence of the *self as a substantive entity,* the same to be inferred from its effects, especially from the *Erlebnis* or perduring nature of consciousness.

Dewey's psychology as reviewed in Chapter IV is a direct contrast with Tennant's in every point relevant to this thesis. Dewey will have none of the basic bi-polarity of Tennant's genesis of psychology. Tennant is, indeed, verbally opposed to dualism, but it is argued in this thesis that he concedes to interactionistic dualism everything but the name. Dewey is as basically opposed to subject-object dualism as to the stimulus-response dualism, which he rejected in his famous article on "The Reflex Arc Concept" in 1896.

Dewey is thoroughly in sympathy with the wholism of the field-theory or *Gestalt* psychology.

As to the above mentioned two points in Tennant's psychology of particular importance for this investigation,—(1) Dewey does not consider any one place, least of all the place of beginning in Tennant's genetic psychology, as a necessary place of beginning. Inquiry, the knowing process, may begin, and does take place, wherever a "situation" or an "event" is found. The "so-called knowledge of so-called objects by so-called subjects" of Tennant is for Dewey only a remote inference, erroneous in its implied dualism. Simply, a situation occurs; its resolution is in progress; and knowledge is taking place. The situation, and hence the beginning of a field of knowledge, is as likely to be in agriculture or factory management as in psychology, in which Tennant says all knowledge must begin. (2) Dewey, soon after the publication of William James' *Psychology,* went beyond James in the denial of the substantive ego or self. A considerable amount of material has been presented showing Dewey's strong opposition to the view of the self which for Tennant is most essential.

Summary—Empirical Epistemology

Tennant calls his epistemology "phenomenalism" (Discussed in Chapter II of this thesis). I have shown that the term is used by him in a manner quite different from what should be expected from a study of the history of the word; and, in the light of well known usage, I have questioned the propriety of Tennant's employment of it. The unique feature of Tennant's usage is that phenomena are held to occupy a middle ground between ontologically real and epistemologically knowable subjects and objects, existing and known as substantive entities. Phenomena are appearances *of* something known *to* something knowing. The writer has suggested that this system ought to be called by its familiar name, interactionistic epistemological dualism. But it is noted that the term "dualism" is rejected by Tennant.

Tennant's discussions of important topics in the field of epistemology such as the categories, scientific method, the place of history in relation to the definition of science, are analyzed at length in appropriate sections of the chapter on his theory of knowledge, but the results are mainly negative.

Tennant's attitude toward abstract laws of numerical, spatial, and propositional relationships,—such as the laws of the multiplication tables, Euclid, and the logical square,—is not as explicit as the student of empiricism might wish. He makes it clear, however, that he *im*plicitly believes in the *a priori* character of such laws. He regards mathematical propositions as completely certain in a way in which existential propositions are not certain. The former, he says, are certain, regardless of our thoughts. With respect to the latter, only a degree of certitude is possible.

Dewey's epistemology (analyzed in Chapter V of this thesis) is in many ways the antithesis of Tennant's. The bi-polarity of phenomena in the knowledge process is as strongly rejected as the bi-polarity of the elementary unit of Tennant's psychology.

Dewey's major epistemological emphasis is upon the denial of the prior character of either logical laws or ontological facts. The reader who is not familiar with Dewey's *Logic* and *Quest for Certainty* is requested to suspend judgment upon this paragraph of this brief summary, if he has not examined the material presented in the fifth chapter of this thesis. It is there established that Dewey holds that both logical principles and the data to which these principles may apply, are produced *in and by* the process of inquiry.

Dewey presents rather extensive material to show that eminent physical scientists agree with him in his denial of the prior character of data. It has been demonstrated in this thesis that Dewey has here misinterpreted his sources, and that the physical scientists referred to do not support his view.

Summary—Empirical Metaphysics

Tennant's metaphysics (presented above in Chapter III) is bi-polar, and it seems to the writer that it had better be called interactionistic ontological dualism,[2] though Tennant rejects the term. He holds that there is evidence for the existence of the self as a substantive entity, and that there is evidence for the existence of the objective world as a substantive entity. He is strongly inclined to view the substance of the so-called material world, the atoms, as composed of spirit or soul-stuff, and this, on the basis of the fact that he cannot readily conceive of heterogeneous entities as interacting.

Much space is devoted to theistic evidences, especially in Volume II of his *Philosophical Theology*. Tennant's only distinctive contribution in this field is a striking presentation of the teleological argument from *in*organic nature. Tennant holds that theistic evidences are strictly analogous to evidences on which we come to any other existential conclusions, and that faith, in the theistic sense, is an extrapolation of the development of scientific belief.

By what the writer has held to be arbitrary and inconsistent reasoning, Tennant has ruled out all theistic evidence based upon the data of human history.

It happens that the writer had completed the composition of Chapter VI on Dewey's metaphysics before having read Breed's incisive chapter on "Education and the Realistic Outlook."[3] Breed corroborates the analysis given in this thesis in every essential point.

Negatively, Dewey's metaphysics may be called a system of acosmism. The *selbständig* universe, the self, the world, and God, are all denied. There is but one positive element in his metaphysics, namely his recognition of vital processes, the units of which are variously called events, situations, etc.; and the over-all process, called inquiry, nature, experience, society, etc.

On what appear to be *a priori* grounds, all possibility of theistic evidence from cosmic data or from human history is ruled out.

General Conclusions

Conclusions—Philosophy of Empirical Psychology

In the area of the empirical philosophy of psychology, no attempt has been made by the present writer to vindicate the more modern and more scientific wholistic psychology. Tennant is deficient in information only. There is no basic reason in his empiricism for any failure to accept and use the more recent and more satisfactory results of scientific psychological research. It would have been interesting to have brought in more collateral material to supplement Tennant's deficiency in psychology, but this was not imperative for the purposes of the present investigation, and would have over-extended a lengthy thesis.

On the two points of chief emphasis directly relevant to empirical method, (1) it is the position taken in this thesis that Tennant has failed to produce evidence for his genetic theory. He has not brought forth sufficient reason for insisting upon his particular point of genesis. If he means that experience starts with experience, then his genetic theory is a mere tautology. If beginning with "so-called knowledge of so-called objects by so-called subjects" is deeper than tautology, as he certainly considers it to be, then his psychology really begins with an ontological assumption as to a necessary and inevitable structure of knowledge and its genesis. But to begin with an assumed ontological structure of knowledge, is a different matter from beginning with the mere *occurrence* of bi-polar knowledge.

The present writer contends that consistent empiricism must be ready to begin empirical knowledge wherever conscious experience begins to take place. Thus, though there will always be presuppositions in any knowledge process, yet there will be no cognitive assumptions or presuppositions for consistent empiricism which are not subject to question and examination from the point of view of other presuppositions.

The writer has endeavored to show that Tennant's genetic theory is really not essential to his empiricism. If it is conceded that apparently bi-polar knowledge *occurs* (and Dewey would not deny this *occurrence*), Tennant has really all that is necessary for his further constructive steps. Such occurrence is data to be accounted for, whether it is a necessary point of beginning in all knowledge or not.

(2) The second point of emphasis in Tennant's psychology, from the point of view of this investigation, the substantive reality

of the self, is a development of the Cartesian view on more than mere Cartesian grounds. To the fact that thought occurs, and the inference to a thinker,—to the *cogito ergo sum,*—Tennant adds the fact that thought is *erlebt,* lived *through,* and the inference that the "thinker" has a kind of continuity, or perduringness. It has been shown that this perduring nature of experience, the fact that I today know my experience of yesterday as *my* experience, was the fact which caused Hume to doubt his own denial of the substantive ego.

It is not the conclusion of this thesis that Tennant has said the last word on the subject of the self, but it is suggested that Tennant has stated the problem in a fresh and stimulating manner, a manner which is likely to promote more valuable investigation in this aspect of empirical psychology.

It is Dewey, not Tennant, who strongly opposes any notion of the self as a substantive entity. It will be fair to both philosophers to leave the conclusion of this investigation of the question of the self where Dewey left it. As quoted in Chapter IV, Dewey says

> . . . I am obliged to admit what he [Prof. Allport of Harvard] says about the absence of an adequate theory of personality. In a desire to cut loose from the influence of older "spiritualistic" theories about the nature of the unity and stability of the personal self (regarded as a peculiar kind of substantial-stuff), I failed to show how natural conditions provide support for integrated and potentially equilibrated personality patterns. . . . I certainly admit that at the present time the problem is unsolved, and would go so far as to say that as a practical problem it is *the* problem of our day and generation. (From the Schilpp volume, pp. 555 f.)

Conclusions—Empirical Epistemology

The writer's conclusion from the comparison of Tennant's and Dewey's epistemologies is that the bi-polar view of phenomena,—regarding them as appearances *of* objects *to* subjects,—is empirically more fruitful than Dewey's denial of this view.

Dewey's denial of the *a priori* character of logical laws, and of the prior character of data, is found to be insufficiently supported. As to *a priori* laws of logic, Dewey tries to show that C. S. Peirce supports his denial thereof, but I have shown that in the immediate context of the material to which Dewey refers, Peirce says that such *a priori* laws are the faith of the logician. As to data, Tennant's postulate of ontologically existing objects prior to, and constituting part of the data for, any given process of inquiry, is shown to be a basic assumption for the very scientists whom Dewey seeks to show as opposed thereto.

Evidence has been presented to show that the hypotheses of *a priori* logical laws and prior ontological data are empirically more fruitful as working principles than Dewey's denial of these hypotheses.

On the other hand, Tennant's hypothesis that abstract mathematical and logical propositions are of a higher order of certainty than existential propositions, is questioned. The very law of contradictories is a postulate, or, as Peirce says, the logician's *faith.* Peirce believed such laws are absolutely true, but the present writer holds that the arguments or evidences for such laws,—the cognitive processes leading thereto,—can only be stated in terms of probability, postulation, and faith. If it be held that abstract mathematical propositions are true by *definition,* and so tautologically true, yet the writer contends that even in an instance of mere tautology, the identity of an abstraction, A is A, in two successive steps in the manipulation of a definition, is a breathtaking assumption,—an assumption to be accepted cognitively as entirely probable only because of its empirical fruitfulness. Thus Tennant's proposition that five plus seven equals twelve, and the existential judgment that the earth moves around the sun, may *both* be *believed* to be *absolutely true,* but the cognitive processes leading to these conclusions are still inductive, empirical and probable; and *"faith"* in them both depends upon evidence of fruitful empirical integration.

Particularly noteworthy is the fact that both Tennant and Dewey in different ways effectively answer the ego-centric predicament of epistemology. Dewey calls the promulgation of his own view a "Copernican revolution." It is perfectly obvious that the sun, moon and stars move around the earth; we can observe their movement and its order. All that we can see is from the earth. Nevertheless, by more careful observance of astronomical data the Copernican doctrine proved that the motions of the sun and stars are not geocentric, but that the centers of their orbits are distinctly other than the earth. By analogy, says Dewey, his doctrine of the knowledge process removes the center of the orbit of cognition from the ego to the social enquiry continuum.

Tennant does not regard his own views as revolutionary in any sense, but his bi-polar view of phenomena is completely free from egocentrism. The analogy of the Copernican doctrine would, in fact, apply far more fittingly to Tennant's view. Copernicus did not deny the earth in denying geocentricity. Tennant does not deny the knowing subject in pointing out the part played by the object in the knowing process.

That the knowing process is not wholly in the ego, is agreed to by both philosophers. That it is a bi-polar process, analogous to the relation of earth dwellers to astronomical data, is Tennant's contribution.

Conclusions—Empirical Metaphysics

The results of the comparison of the metaphysical systems of Tennant and Dewey do not involve the acceptance of any particular conclusions of either, but consist in certain observations as to method. It is suggested by the present writer that empirical philosophy ought not, on *a priori* grounds, to rule out data from any conceivable field of being. It is further suggested that from Dewey the empirical student might learn that there *may* be a world of prior data, that there *may* be *a priori* laws of logic, and that the empiricist should remain open to evidence on these two points. From both Tennant and Dewey it might be learned that denial on principle that a Creative Person may have said and done specific things in human history, is contrary to good empiricism. These conclusions are based upon negative examples in the writings of the two philosophers referred to, that is, examples of negative *a priori* assumptions which are not empirically sound.

This study does not claim to have produced philosophical results which must be accepted as final and unchangeable dogma hereafter forever. This investigation does claim to have clarified certain hypotheses relating to empirical method in such a manner that further research may be based upon these results.

Recommendations for Further Research

Specifically (1) in the field of psychology it is recommended that empirical philosophy devote more careful attention to the question of personality or the self. Dewey's statement that this is "*the* problem of our day and generation" is accepted by the present writer as probably literally true. In terms of empirical philosophy and scientific psychology, (as yet,) as Dewey says, "the problem is unsolved." (2) In epistemology, the apparent bi-polarity of the knowledge process may profitably be investigated further. Grounds for the rejection of epistemological bi-polarity are not yet sufficient. Grounds for the confident acceptance thereof may prove capable of more convincing presentation than heretofore. (3) In metaphysics, this investigation has shown that empirical philosophy has great need of caution against *a priori* negatives. It is suggested that the place of the *a priori* in important writings in the field of empirical philosophical theology be subjected to thorough criticism.

1—Of course the term "negative" is only relative. One may *affirm* that a room is empty, and one may *deny* that it is unfurnished. However, it seems common usage to regard a statement of non-existence or emptiness as a *negative* view, and a statement of existence or furnishment as a *positive* view, regardless of the verbal forms used.

2—Just as interactionistic epistemological dualism was suggested as the proper designation for his theory of Knowledge.

3—Nelson B. Henry, editor, *The Forty-First Yearbook* of the National Society for the Study of Education, Part I, *Philosophies of Education* Chapter III by Frederick S. Breed, pp. 87-138.

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THE END

INDEX

Ab extra, 411f, 415
Absolute, 224ff
Absolute mind, 271
Absolute motion, 366ff
Absolute space, 366ff
Absolute Spirit, 339
Absolute time, 366ff
Abstraction, 40
Abstraction, Complete. 153
Acceptance and control, 340
Accomplishment, Dewey's; 359
Acosmism, 259
Actual and possible, 371
Adjectives substituted for nouns, 448
Adverbs substituted for nouns, 448
Aesthetics, 203
Agnosticism, Dogmatic, 393
Alleman, George Mervin, 144
Allport, Gordon W., 267, 291f, 298f, 301, 304f, 314, 315
Amos, 245
Analytical psychology, 19
Andover Review, 274f, 282, 285, 314
Animism, 51, 63, 462ff, 465
Anlage, 45
Anselm, 181-187, 254
Antecedent essences, 335
Antecedent existences, 335
Antecedent facts, 324, 340
Antecedent objects, 372, 373, 388
Antecedent reality, 332, 458
Antecedent truth, 336
Antinomies, 484
Anti-supernaturalism, 469, 486
Antithesis, False, 334
Apocrypha, 217
Apollinarianism, 246
Apologetics, 473
A posteriori, 254
Apostles' Creed, 280
A priori laws, 439
A priori negations, 373, 377
A priori values, 390
Aristotle, 57, 81f, 85, 136, 168, 217, 246, 313, 318ff, 334, 336, 337, 342, 359, 410, 420, 434, 450
Aristotle misquoted, 319ff
Arminius, 45
Art as Experience, 465ff
Associationism, 23, 26, 33, 38
Athanasius, 78, 207, 246
Atheism, 477
Atomism, 406
Atomistic psychology, 21ff
Augustine, 221f, 476
Awareness, 37, 461
Axtelle, George E., 308, 315

Bain, Alexander, 277
Baldwin, James Mark, 45, 288
Barth, Karl, 154, 260, 262
Bauer, Walter Felix, 13
Baur, Ferdinand Christian, 13ff
Baur, Walter, 13ff
Bawden, H. H., 121
Beardsley of Yale, 433
Behaviour, Biological, 271
Behaviourism, 55
Belief, 107
Benedict, Ruth, 63, 464
Bentham, Jeremy, 375
Bentley, Arthur F., 135, 143f, 147
Bergson, Henri, 36, 157
Berkeley, George, 91, 120, 162, 209
Bertocci, P. A., 1, 13f, 15, 20, 118ff, 121, 145f

INDEX

Best possible world, 232ff
Biblical tradition, 125
Bibliography, 500ff
Bibliotheca Sacra, 271, 279, 281, 287, 308
Bill of Rights, 481, 487
Biology, 301
Biology and psychology, 289
Blanshard, Brand, 334
Boas, Franz, 455
Bode, Boyd Henry, 32, 44, 46, 50, 60, 62, 64, 306, 423
Body and mind, 288
Body and soul, 287
Body as a cause, 276
Boehme, Jacob, 115
Boring, Edwin G., 285, 313
Boucher, Chauncey Samuel, 436
Bowne, Borden P., 92, 120, 235, 259
Brahe, T., 168
Brain and mind, 272
Bridgman, P. W., 5, 75, 137, 252, 353f, 356, 382f, 434, 437
Brightman, E. S., 92, 119, 120, 140, 149, 179, 236
Briton, Karl, 9
Broad, C. D., 7, 140, 143, 447
Brubacher, John S., 136
Brute facts, 165, 329, 331
Buchler, Justus, 4ff, 10, 193, 256, 257
Buck, Pearl, 473, 486
Burtt, Edwin A., 143
Buswell, J. O., Jr., 63, 144, 210, 246, 253, 254, 258, 260, 262
Butler, Joseph, 12f, 57, 95, 102ff, 106, 140, 143, 401, 470, 473
Byrd, Richard E., 147

Cajori, Florian, 360, 379f, 437
Calvin, John, 35, 56
Calvinism, 451
Cameron, 251
Carelessness, Dewey's 432, 485
Carroll, Lewis, 92
Causality, 27, 33, 83, 94, 136, 146, 151, 171f, 174, 242, 273, 276, 308f, 413, 446, 452, 453, 484
Categories, 138, 142, 150, 175
Categories, Aristotle, 68ff
Categories, Kant, 71ff
Categories, Kant's Table, 77
Categories, suggested by author, 133ff
Categories, Tennant, 78ff
Certainty, 328, 351
Certainty and certitude, 137
Certainty, Degrees of, 156
Chalcedonian Christology, 246
Changeability of change, 451
Change, Illusion, 450
Chemistry, 344
Childs, J. L., 432
Christian evidences, 130
Christian idea, distorted, 451
Christian writers, 337
Christianity, 477
Christianity, Medieval, 457
Church and state, 478
Church history, 479
Cicero, 141
Clark, Gordon H., 136
Clark, Samuel, 76
Coherence, 99
Coleridge, Hartley, 113
Colossians, Epistle to, 207
Columbus, Christopher, 323, 332
Common Faith, 469ff
Complex of attributes, 247
Comte, Auguste, 474
Conclusions, Empirical epistemology, 497
Conclusions, Empirical metaphysics, 499
Conclusions, Empirical psychology, 495
Concrete individual, 293
Consciousness, 28, 461
Consciousness, see *Erlebnis*
Consistency, 99, 149
Contingencies, 445
Continuity of consciousness, 290
Contradiction, 86, 99

Contradictories, 424f
Control, Degrees of, 342
Controlled inquiry, 424
Cook, Harold P., 136
"Copernican revolution", Dewey's 390, 394ff
Copernicus, 168, 473
Cosmic teleology, 179, 249, 432
Cosmological argument, 124
Costello, Harry Todd, 456
"Crack" in the universe, 431
Creation, 214, 257
Creationism, 252
Creeds, 477, 487
Critical realism, 91
Curved space, 442
Cyrenaic, 440
Cyrenaic ethics, 453

Darwin, Charles, 12, 473
Dasein, 4, 97, 131, 136, 328, 332
Data, 349f
Data, "Givens", 351
Deductive reasoning, 1
Deism, 153f, 157, 237, 250
Delitzsch, Franz, 62, 139f
Democritus, 36
Demosthenes, 346
Dennes, William R., 349
Descartes, René, 29, 35, 37, 48, 61, 138, 181f, 187, 194ff, 202, 254, 255, 290, 339, 360, 365f, 384, 410
Determinate being, 233
Deus-homo, 247
Dewey, John, 1ff, 6, 21, 35, 47, 50, 63, 66, 82, 87, 91, 100, 126 131, 135, 138, 140, 143, 147, 157, 173, 255, 264-500
Dewey, Earliest period, 268
Dewey, Ninetieth birthday, 486
Deweyism, Typical, 333
Dewey, Modern, 288
Dialecticians, 281
Differentiation, 387f
Dimensionalism, 251
Dimensional symbols, 161
Ding an sich, 291
Direct revelation, 260
Discontinuity, 169
Discoveries, 347
Discovery or invention, 326
Discovery, Ilustration, 430
Divine and human, 283
Divisibility of matter, 362
Dobzhansky, T. H., 351
Double entry, 146
Double truth, 154
Dualism, 2, 17, 35, 36ff, 47, 48, 52 61, 82, 121, 132, 149, 215, 238, 252 287, 290, 297, 317, 331, 340, 350, 366, 389, 403, 406, 447, 461, 483,
Dualism, Psycho-physical, 446
Dualistic realism, 143, 353, 423
  See Realistic Dualism

Economic theory, 425
Eddington, A. S., 159, 198, 251, 354f, 377, 380f, 389, 439
Eddy, Mary Baker, 359
Edel, Abraham, 443ff
Edwards, Jonathan, 165, 230
Efficacy, 452f
Einstein, Albert, 52, 64, 159, 367ff, 414, 434, 438, 442, 473
Emergentism, 47, 59
Emergentistic materialism, 444
Emmerich, Ann Katherine, 116
Empirical historiography, 263
Empirical investigation, 448
Empirical reasoning, 240
Empiricism, 49, 88, 101, 120, 160, 252, 307, 352, 385, 406, 422
Empiricism, empirical definition, 1ff, 8f, 17, 24
Empiricism, Newton's 362f
Empiricism, Radical, 296
Ends, 454
Entopy, 127, 192,
Ephesians, Epistle to, 481
Epicurean, 440

Epicurean ethics, 453
Epistemology, 129, 131, 144, 176
Epistemology, Definition, 67
Epistemology, Dewey's, 316-443
Epistemology, Tennant's, 66-132
Erlibnis, 25ff, 31, 33, 42, 46, 49, 60 79, 290, 298, 300
Eschatology, 432
Eternal, 258
Eternal essences, 414, 441
Eternity, 259
Ethics, 480f
Euclid, 94, 160, 252, 323, 431
Euclid, Logic of, 369
Euclid, Misconception, 369
Eutychianism, 246
Evaluation, 424
Events, 271, 365, 449
Evil, Problem of, 231, 257, 258, 398ff
Evolution, 12, 15, 455
Evolutionary ethics, 283
Ewing, Maurice, 441
Ex nihilo, 445
Experience, 2, 304
Experience and Nature, 448ff
Experimental empiricism, 358
Experimental inquiry, 343
Experimentalism, 126, 138
Experimental operations, 373
Experimentation, 1, 330, 345
Explanation, 172f, 175
Explication de Texte, 456

Faculties, 286
Faith, 107, 118
Faith and reason, 338
Farming, illustration, 422
Fechner, G. T., 40
Feibleman, James K., 4, 9f
Fichte, I. H., 339
Field theory, 59
  see *Gestalt* Psychology
Five steps, Dewey's, 301ff
Fixed Being, 450
Fixed substances, 449
Flint, Robert, 61, 472, 486
Form and matter, 331
Form Geschichte, 14, 309
Formal logic, 287
Franke, August Hermann, 57
Freud, 46
Fullerton, G. S., 287
Functionalism, 288, 448
Fundamentalism, 473
Future perfect tense, 484

Galileo, 348
Gall, F. J., 65
Garnett, A. Campbell, 443ff
Gaunilon, 182, 254
General conclusions, 495
Genetic psychology, 7, 10, 17-65, 118
Genteel tradition, 450
Gestalt psychology, 12, 21, 22, 59, 89f, 114, 139, 288, 303, 454
  see Field Theory
"Givens", 351
Gnosticism, 396
God, 332, 348, 403, 476
God, Dewey's 478
God, Dewey's, early view, 283f
God-man, 262
God, Nature of, 214
Goodwin, W. W., 144
Gospel, Fourth, 207
Grammatico-historical, 280f
"Great Gulf", 35
Greek Civilization, 345ff
Greek thought, 336
Green, T. H., 292-295, 470
Gulick, C. B., 110, 144

Habit, 300, 301, 415
Hall, G. Stanley, 10, 268f
Hamilton, William, 99
Hawkins, Robert M., 309
Heat and motion, 349
Hebrews, Epistle to, 144, 207, 233
Hebrew writers, 337
Hegel, G. W. F., 14, 100, 138, 291ff,

313, 339
Hegelian idealism, 271, 284
Hegelianism, 268, 288, 332
Hegelian pantheism, 279, 284
Heidbreder, Edna, 10, 21, 59, 285, 314
Heim, Karl, 251
Heisenberg principle, 377, 378, 380, 382, 410
Hellenistic, 137
Henotheism, 245
Henry, Nelson B., 59, 500
Heraclitus, 320
Herbart, J. F., 20, 30, 56, 97
Heterogeneity, 276
Historical evidences, 157
Historical science, 16, 125f, 129, 130, 147, 156, 180, 248f, 482
Historico-gramatical, 280f
Historismus, 455
Hobbes, Thomas, 36
Hodge, Charles, 28, 43, 62, 139, 181, 222, 254, 452, 472
Hoffding, Herald, 21
Holism, 464, 465, 485
Homiletics, Anti-religious, 393
Hortatory method, 393
Hook, Sidney, 57, 58, 65, 119, 125, 144, 200f, 256, 443ff
Horne, Herman Harrell, 315, 474
Horton, W. M., 12f
Hosea, 245
Hume, David, 24, 28, 30-34, 57, 99, 231, 241, 301, 452, 472
Husserl, Edmund, 100
Hutchins, Robert, 58
Huxley, Thomas, 13, 105, 210, 234
Hylozoism, 137, 157, 464, 465
Hypostatization, Spelling, 442
Hypotheses, Newton's, 360ff

Idealism, 91, 123, 270, 278, 365, 406, 451, 459, 482
Idealism, Tennant's, 35
Immanence, 237, 238f, 259, 277
Immortality, 237
Immutability, 220, 222, 319, 328, 342, 430, 434
Immutability, Thomas' view, 222
Implication, 146, 341
Incarnation, 246
Indeterminacy, 377, 383f
Induction, 101, 102, 241
Inductive inference, 124, 153
Inductive logic, 166
Inductive reasoning, 1, 249
Ineffable, 114ff
Inferential function, 422
Infinite, 257
Infinite, Calvinistic use, 219f
Infinitude, 217
Infinity, 218
Innate ideas, 1, 61
Inquiry process, 446
Instincts, 45
Instrumentalism, 5-7, 138, 268, 331, 395, 448
Integration, 99, 142, 147
Integrationism, 376, 423
Intellectualist's fallacy, 395ff
Interaction, 38
Interactionism, 35, 61, 95, 101, 255
Intrinsic value, misconstrued, 425f
Invention or discovery, 326
Irrational, 250, 308
Irrationality, 151
Irresponsibility, 427, 433, 434
Isaiah, 124, 261, 282, 476

James, William, 2f, 5ff, 8, 21, 27, 36 51, 64, 115, 128, 235, 288, 292-298, 313, 314, 394, 434, 452, 466
Jeans, Sir James, 149f
Jesus, 247, 261, 279f, 337
Jevons, W. S., 102, 143, 250, 401
Jew, Catholic, and Protestant, 337
Job, 178, 470
John, Gospel of, 260ff
Judaism, 477
Judas Iscariot, 337
Judeo-Christian tradition, 122, 124, 156,

157, 207, 236, 242, 347, 392

Kahn, Sholom J., 147
Kaleidoscope, 204
Kant, Immanuel, 27, 57, 60, 85, 94, 97, 99, 125, 136, 137, 138, 159, 165 182, 188, 209, 231, 254, 291f, 295, 338, 374f, 394, 458, 471
Kepler, 168
Keynes, J. M., 143
Kierkegaard, Sören A., 260
Kingsley, Charles, 207f, 256
Knower and the known, 374, 389
Knowing and doing, 340
Knowing by doing, 434
Knowledge, 328
Knowledge, Ubiquity, 395ff
Köhler, W., 139
Koran, 244
Krikorian, Y. H., 483, 486
Kroeber, A. L., 325f, 434

Lamont, Daniel, 161, 251, 431
Lamprecht, Sterling, 472
Laplace, P. S., 379
Laplace, On Creator, 380
Law, Meaning of, 163ff
Lecture method, 436
Lee, Otis. 85
Leibnitz, G. W., 24, 43, 87, 138, 162, 181-187, 200, 232, 253f, 255, 284f
Lewis, Edwin, 251
Lewis, C. S., 479
Liberalism, 473
Liddell and Scott, 110
Lippman, Walter, 473, 486
Lobachewsky, N. I., 94, 160, 165, 414
Locke, John, 33, 47, 97, 102, 103, 106, 143, 269, 360
Lodge, Rupert C., 139
Logarithms, 243
Logic, Conflicting views, 405
Logic, Dewey's key paragraph, 407
Logical forms, 1, 6, 131, 334, 340, 341, 370f, 376, 385, 403, 404, 407, 410, 415, 424f, 427, 428, 429
Logical forms, high point, 429
Logical forms, Peirce's view, 417f
Logic and mathematics, 325
Logic: the Theory of Inquiry, 401ff
Logos, 207, 278
Lorentz, H. A., 368
Lotze, R. H., 120
Luther, Martin, 56
Lutheranism, 451

Mach, Ernest, 176
Machen, James Gresham, 14, 66, 473, 486
Macintosh, D. C., 2, 13, 122
Mackenzie, J. S., 256, 391f, 440
Magna Charta, 481
Mandelbaum, Maurice, 262f
Mansel, H. L., 99
Materialism, 273, 274, 338, 446, 459, 481
Mathematics, 323, 338
Matter, 79ff, 278f, 428, 451, 454
Matter and form, 404
Matter and mind, 448f, 450
Maxwell, J. C., 368, 381
McLellan, J. A., 284
Mead, G. H., 437
Measurement, 353f
Mechanism, 158, 166f
Mencken, H. L., 486
Mendelyeev, D. I., 169f
Messiah, 124, 392
Metallurgy, illustration, 411
Metaphysics, 249, 316, 319, 406
Metaphysics, Dewey's, 443-487
Metaphysics, Tennant's, 148-262
Mill, John Stuart, 2, 24, 47, 98, 101 235, 269, 375, 391
Milton, John, 57
Mind, 271, 279, 289
Mind and brain, 275
Mind and knowledge, 335
Mind, Substantive, 385f
Minds, Adjectival or adverbial, 444f

INDEX

Miracle, 240, 241, 259
Modernism, 457
Mohammedanism, 246
Monads, 238, 259
Monism, 122, 238, 239, 406
Monotheism, 245
Montague, W. P., 235
Morals, 454
Morris, G. S., 268, 307
Moses, 124, 245, 282, 337
Moulton, James Hope, 110, 144
Murchison, Carl, 59, 313
Mysticism, 2, 114ff, 396

Nagel, Ernest, 140, 443ff
Natural law and rhythm, 467
Naturalism, 126, 308, 445
Natural religion, 181
Necessary truths, 87
Negative *a priori*, 242
Negative Metaphysics, 453
Negativität, 281f, 332, 483
Neology, 448
Neo-Kantian idealism, 403
Neo-materialism, 445
Neo-orthodoxy, 154
Neo-realism, 91
Nestorianism, 246
New birth, 118
New Testament, 14
New Testament canon, 111
Newman, J. H., 398
Newton, Sir Isaac, 12, 75, 76, 159, 165, 172, 347, 356, 357. 359, 360, 361, 363, 364, 366, 367, 370, 377, 379, 384, 434, 473
Newton, Misquoted, 363f
Nirvana, 318
Non-rational, 250, 272, 308
Norms, 334, 340, 386, 398, 422
Norsemen, 484
Noumena, 120, 253
Noumenal, 145, 291
Noumenal reality, 2
Nouns abolished, 448, 451, 477
Number, 218f
Numerical identity, 40, 78, 115, 146, 153
Numina, 122
Numinal, 145
Numinal reality, 116, 117

Object, 39, 343f, 349f, 355
Objective idealism, 352
Objective world, 120
Observation, 330
Occasionalism, 255
Old Testament, 244f
Omnipotence, 233, 236, 259
Omniscience, 228f
Ontological argument, 181f
Ontological entity, 271
Open universe, 432
Operational thinking, 356
Order of knowing, 48
Organism, 274, 406
Orr, James, 74f, 137, 245, 255, 260 472
Orr, John, 250
Otto, Rudolph, 115
Outcome, 343

Pain, Problem of, 258f
Paley, William, 12f, 197, 255, 470, 473
Panpsychism, 157
Pantheism, 157, 238, 259
Parallelism, 255
Partkhurst, Helen Huss, 205, 256
Parthenon, 378
Participial, 447, 483
Pasteur, Louis, 328
Paul, 279f, 282, 309
Pearson, K., 158
Peirce, Charles Sanders, 3ff, 8, 87, 102, 138, 144, 193, 200f, 256, 355, 358, 401, 402, 403, 415ff, 434, 441
Peirce, "Abduction", 85
Peirce, Misconstrued, 403, 416f
Pelagius, 45, 240
Perduring Consciousness, 33

see *Erlebnis*
Perfection, 220
Perfect life, 392
Personal ego, 289
Personal self, 459
Personalism, 482
Personality, 41, 226
Perspicacity, 85
Peter, 261
Peter, Second Epistle of, 236
Pfeiffer, Robert H., 245, 260
Phenomena, 120
Phenomenalism, 93ff, 175f, 373
Phenomenalism, Tennant's, 66-132, 97, 149
Philistines and Samson, 436
Philo of Alexandria, 113
Phrenology, 57, 64
Physical causation, 273
Physical realism, 420
Physical science, 13
Physics, 127, 151, 160, 170, 250, 346 349, 410, 414, 447
Pisteology, 144
Planck, Max, 146, 191f, 254
Plato, 74f, 141, 162, 182, 209, 222 337
Pluralism, 239
Polarity, 403
Polytheism, 227
Position and velocity, 382
Pragmatism, 3ff, 10, 154, 403
Pre-existence, 43
Prima facie facts, 17ff
Primitive religion, 244
Pringle-Pattison, Andrew Seth, 314, 391
Printer's type argument, 256
Probability, 84, 86, 101, 103, 106, 143
Probable inference, 240
Protestant philosophy, 451
Proverbs, 333
Providence, 234
ps, 33, 39, 145
Pseudo-Dionysius, 115
Pseudo-history, 393
psi, 39, 145
Psychical events, 286
Psychological subject, 267
Psychology, 316
Psychology, Dewey's, 266-315
Psychology, Tennant's 17-49
Ptolemy, 168
Public investigation, 118-120, 409

Quantum theory, 170
Quest for Certainty, 318

Radar Pips, 66
Rahab, 110, 112
Ramsay, Sir William M., 116, 145
Randall, John Herman, 4ff, 10, 257, 319, 434, 443
Rapport, 118, 120, 121, 140, 156, 162, 204, 231, 240
Rationalism, 14, 18, 58, 83, 86ff, 138, 151, 164, 168, 347, 352, 359, 374, 403, 406, 413, 422, 482
Rationality, 158, 172f, 178, 193, 413
Rational theology, 181
Realism, 88, 90ff, 120, 142, 250, 353 406
Realistic dualism, 90ff, 121, 139
  see Dualistic Realism
Reasonable, 86
Recommendations for further research, 500
Reductionism, 445
Reductive materialism, 443
Reflective thought, 352
Reflex arc, 285, 287, 288
Relativity, 431
Relativity and logic, 431
Relativity of knowledge, 98
Relativity of truth, 99
Religion, 469
Religions-geschichte, 244f
Religious, 477
Religious, The, 469
Religious actuality, 399
Religious conflicts, 400

INDEX

Religious experience, 114-124
Religious ideal, 399
Religious liberty, 480
Res cogitans, 45, 46, 47, 267, 293, 297
Res extensa, 173, 274, 366
  see Descartes
Results, 409
Revealed religion, 181, 251
Revelation, 237, 392
Revelation, Infallible, 243
Ritschl, Albrecht, 10, 209
Roberts, John R., 140
Robertson, A. T., 110, 144
Robinson, Daniel Summer, 66, 136, 138
Romans, Epistle to, 144, 476
Rosen, Edward, 168
Ross, Sir W. David, 136f, 320, 434
Rousseau, J. J., 53ff, 55, 57
Royce, Josiah, 282, 313
Runes, Dagobert D., 9, 10, 100
Russell, Bertrand, 282, 307, 458

Sabellianism, 207, 258
Samson and Philistines, 436
Santayana, George, 82
Saul of Tarsus, 113
Savery, William, 10
Schiller, F. C. S., 7
Schleiermacher, F. E. D., 115, 124f
Schneider, Herbert W., 440
School teachers, 334
Schubert, Paul, 312
Schweitzer, Albert, 247f, 262
Science, a camouflage, 332
Science, definition of, 12
Scientific processes, 252
Scudder, Delton Lewis, 12ff, 35, 60, 62, 122, 146
Self, 30, 33, 37, 291
  see Soul
Sellars, R. W., 438
Sensation, 275
Sensationalism, 22f, 38, 88, 307, 352, 374
Sensationalistic empiricism, 358
Sense data, 18f
Sense perception, 422
Seth, Andrew, 291, 314
Sheldon, W. H., 443
Sidgwick, Henry, 440
Situation, 303
Smyth, H. W., 110, 144
Social heredity, 45
Social psychology, 39, 315
Social workers, 334
Sorley, W. R., 209
Sosein, 131, 136, 328, 332
Soul, 29, 41, 42, 43, 44, 50-58, 269, 272, 275, 277, 286, 403
Soul and body, 271
Space, 427, 442
Space-activity, 447
Space, Curved, 160f
Space, Definition 73ff, 76
Spectator theory, 322, 327, 328, 378, 385
Speculation, 341
Spencer, Herbert, 99, 339
Spinoza, B., 165, 338, 379, 448
Spirit, 338, 451
Spontaneity, 158
Stace, W. T., 85
Standards, External, 394
Stout, G. F., 21
Strauss, David Friedrich, 13ff
Stream of consciousness, 296
Subject, 29, 34, 292, 295
  see Soul
Subject and object, 460
Subject-matter, 428
Subjective idealism, 289
Substance, 111, 112, 451
Substantival, 446f
Substantive existence, 454
Substantive mind, 439
Substantive world, 439
Summary, Empirical epistemology, 493
Summary, Empirical metaphysics, 494
Summary, Empirical psychology, 492
Summary, General, 488
Summary, Procedure, 488
Supernatural, 245, 387, 471, 475, 482

Symbolic logic, 152
Symbolic logic, Dewey, 404f
Synoptic problem, 262

Tabulated data, 408
"Takens", 351
Tangle of sentences, 329, 330, 413
Taylor, A. E., 211, 232, 252
Teleological argument, 124
Teleology, 176ff, 190, 192ff, 347, 364, 432
Teleology, cosmic, 179, 241, 453
Teleology, ethical, 208
Teleology, inorganic, 198ff
Teleology, synthetic, 211ff
Tennant, F. R., 1-263, 267, 269, 274f, 276, 282, 283, 290, 306, 307, 316, 373, 398, 419, 430f, 432, 442, 466, 470, 472, 473
Theism, 118, 122, 123, 154, 156, 157, 237, 241, 249, 250, 252, 259, 332, 480
Theistic evidences, 156
Theistic proofs, 471
Theologian, Tennant, 108, 109, 113
Theological floundering, 257
Theology, 153ff
Thermo-dynamics, Second law of, 127, 167, 191
This table and *the* table, 389
Thomas Aquinas, 57, 156, 180, 217, 221ff, 451
Thompson, Merritt M., 64
Thorndike, E. L., 30
Tillotson, John, 202
Time, 215ff, 427, 442, 457
Time, Definition, 73ff, 76
Titchener, E. B., 30, 46
Totality, 233
Traditionalism, 457
Traditional religion, 399
Transaction, 460
Transcendence, 277
"Tree of Knowledge", 234
Trigger action, 276
Trinity, 78, 226ff
Truth and falsehood, 429
Truth and falsehood reversed, 386
Truth, Definition, 459
Tübingen theology, 13f
Tufts, James H., 32, 60, 254

Ultimate being, 339
Unchangeable, 258
Underwood, R. S., 160
Uniformity of nature, 136
Universal consciousness, 270, 289, 290
Universal mind, 288, 291
Universals, 165
Universal self, 270, 289, 290
Unmoved Mover, 342
Unshakeable creed, Dewey's, 480
Utilitarianism, 391, 440, 453

Value, 118, 335, 336, 387, 391, 400 414, 477
Van Dusen, Henry P., 486
Vigneron, Robert, 456
Verification, 117
Vitalism, 137, 464, 467

Wallace, A. R., 209
Walstein, Benjamin, 147
Ward, James, 1, 20ff, 46
Warfield, Benjamin B., 250, 259
"Warrantable assertion", 412
Watson, John B., 314
Weber, Alfred, 43, 62
Wells, H. G., 236
Westminster Assembly, 61f
White, L. A., 455
White, Morton G., 7, 10, 268f, 284, 307
Whitehead, A. N., 349
Whitney, F. L., 301
Windelband, W., 31, 32, 43, 60, 62, 181, 195, 254, 255, 455f
Wolff, C., 138
Woodbridge, Frederick, 456, 458
Word of life, 329
Wundt, W. M., 46, 273

Zero symbol, 325f

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